October 31, 2022

Des Gillen
President
BP-Husky Refining LLC
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Oregon, OH 43616
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City of Toledo
Division of Environmental Services
348 S. Erie Street
Toledo, OH 43604
Attn.: Peter Park

RE: CMS Summary & Data Assessment Report – 3rd Quarter 2022

Dear Sir or Madam:

Attached is the CMS Summary Report and Data Assessment Report for BP-Husky Refining LLC for the period of July 1, 2022, through September 30, 2022.

CMS Summary Report (Attachment A)
A complete list of emissions units and pollutants monitored are in Table 1 Summary Reports are included in Attachment A. Excess Emissions and Monitoring Systems Performance Report is not required under 40 CFR 60.7(d) if the total duration of excess emissions is less than 1% and the CMS downtime is less than 5% of the total operating time for the quarter. Unless noted in Table 1, these criteria were met for the units listed.

Table 1. Emission Units and Pollutants Monitored

Location/Emission Unit	Parameter	Quarter 3 2022 Downtime (% unit operating time)	Notes
TIU Fuel Gas Mix Drum	H_2S in Fuel Gas		
- B015 - Crude 1 Furnace		0.2	
- B017 - Coker 2 Furnace		0.2	
- B019 - Crude Vac 2 Furnace		0.2	
- B022 - Naphtha Treater Furnace		0.2	
- B029 - DHT A-Train Furnace		0.2	
- B030 - BGOT Furnace		0.2	
- B031 - Vac 1 Furnace		0.2	
- B032 - Coker 3 Furnace		0.2	
- B033 - East B-GOT Furnace		0.2	
- B034 – East Alstom Boiler		0.1	
- B035 – West Alstom Boiler		0.3	
- P007 - FCC/CO Boiler		0.2	

Location/Emission Unit	Parameter	Quarter 3 2022 Downtime (% unit operating time)	Notes
TIU Fuel Gas Mix Drum	Total Sulfur in Fuel Gas		
- B015 - Crude 1 Furnace		2.0	
- B019 - Crude Vac 2 Furnace		1.5	
- B022 - Naphtha Treater Furnace		2.1	
- B029 - DHT A-Train Furnace		2.0	
- B030 - BGOT Furnace		2.0	
- B031 - Vac 1 Furnace		2.2	
- B032 - Coker 3 Furnace		2.1	
- B033 - East B-GOT Furnace		2.0	
- B034/B035 – East & West Alstom Boilers		1.1	
East Side Fuel Gas Mix Drum	H_2S in Fuel Gas		
- B008 - Iso 2 Feed Heater		0.1	
- B009 - Iso 2 Stabilizer Reboiler		0.1	
- B010 - Iso 2 Splitter Reboiler		0.1	
B036 - Reformer 3 Furnace	H_2S	0.0	
P003 - East Flare (see note A)	H_2S	0.0	EE > 1%
P003 - East Flare	Total Sulfur	0.3	
P004 – West Flare Vent Gas (see note A)	H_2S	0.2	EE > 1%
P004 – West Flare “C-Valve” Vent Gas	H_2S	0.2	
P004 – West Flare Vent Gas	Total Sulfur	0.3	
P004 – West Flare “C-Valve” Vent Gas	Total Sulfur	1.7	
B036 – Reformer 3 Furnace	NOx	0.1	
P007 – FCCU/CO Boiler Bypass (see note B)	CO	0.0	EE > 1%
P007 – FCCU/CO Boiler Bypass (see note B)	NOx	16.0	EE > 1%
P007 – FCCU/CO Boiler Bypass (see note B)	SO_2	15.1	
P007 – CO Boiler Exhaust	CO	0.0	EE > 1%
P007 – CO Boiler Exhaust	NOx	0.1	EE > 1%
P007 – CO Boiler Exhaust	SO_2	0.1	
P009 - Sulfur Recovery Unit with #1 (see note D)	SO_2	0.3	EE > 1%
P037 - Sulfur Recovery Units #2 & #3 (see note D)	SO_2	0.1	EE > 1%
B034 – East Alstom Boiler (see note C)	NOx	0.0	
B035 – West Alstom Boiler (see note C)	NOx	0.0	

Note A: P003/P004 East & West Flare
The attached H_2S tables identify all emissions in excess of the NSPS Subpart Ja H_2S limit of 162 ppm- $limit_v$ on a 3-hour rolling average. If an event did not occur for 3 consecutive hours, then it does not meet the 3-hour averaging requirement and therefore is not considered or reported as excess emissions. If a 3-hour event exceeds the 300 ppm calibrated span of the H_2S CMS, then the Total Sulfur analyzer data was used for the H_2S value.

Note B: P007 – FCCU/CO Boiler Bypass
The purpose of these CEMS are to continuously monitor the listed (CO, NOx, & SO_2) emissions from the FCCU Regenerator exhaust in the event of a CO Boiler bypass while there is feed to the FCCU. Otherwise, compliance with the listed limits for the FCCU is determined from continuous emissions monitoring of the CO Boiler Exhaust stack. Although this source is not subject to 40 CFR Part 60, Section C.12.(d)(7) of P0104782

(as set forth by Permits-to-Install 04-01290 and P0105902) requires monitoring per 40 CFR Part 60.11. As noted in Section C.12.(e)(4) of P0104782, the refinery has opted to follow the reporting requirements under 40 CFR 60.7. 40 CFR 60.7(c) requires the submission of an Excess Emissions and Monitoring Systems Performance Report and Summary Report Form.

Note C: B034/B035 East & West Alstom Boiler
The attached data tables include supplemental reporting for NOx CEMS records required by 40 CFR 49b(i).

Note D: P009 & P037 Sulfur Recovery Units
Some excess emissions hours reported in this report are not a deviation of 40 CFR 60 pursuant to 40 CFR 60.8(c), which states; nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard

Details of all downtime or excess emission incidents are provided in the summary tables in Attachment A.

Toledo Integrated Unit (TIU) Turnaround (TAR):

BPH's Toledo Integrated Unit (TIU) recently completed an extended maintenance turnaround (TAR), which is a planned event that consists of bringing down a large portion of the refinery. The recent TIU TAR started on April 20, 2022 and was completed on August 8, 2022. Several Refinery units had significantly less operating time than normal quarters due to this TAR.

As part of the planned startup following the TAR, there were excess emissions from the Sulfur Recovery Units (SRUs). BPH is reporting these Excess Emission hours in the SRU summary tables under the startup/shutdown lines. This is not a violation of 40 CFR 60 Subpart Ja, pursuant to 40 CFR 60.8(c), which states that emissions during startup, shutdown, and malfunction shall not be considered a violation of the applicable emissions limit unless otherwise specified in the applicable standard.

As part of the planned startup, the FCCU Regenerator flue gas was routed through the bypass stack per normal start up procedures. During start-up of the FCCU, the FCCU Regen is routed through the FCCU bypass stack, and the CO Boiler is only fired with refinery fuel gas and/or natural gas with the combustion flue gas exiting through the CO Boiler Stack (this mode of operation is referred to as "dual stack operation"). On the morning of July 30th, BPH discovered that the 96" butterfly valve that enables the FCCU Regen flue gas to enter the CO Boiler had become stuck in the closed position preventing FCCU Regen flue gas from entering the CO Boiler. BPH operated in this mode for a period of time, as reported in the planned maintenance notification and follow up notifications that the Refinery sent to TDES and OEPA on June 30, 2022 and August 3, 2022. During this period there was limited ability to treat NOx and the FCCU/CO Boiler exceeded the 365-day rolling average NOx limit (58.1 ppm). These excess emissions hours are included in this report.

While the bypass stack was in use, continuous emission monitors (CEMS) located in the FCCU Regenerator off gas line continued to measure SO_2, NOx, and CO,

and a continuous opacity monitor (COMS) located in the bypass stack measured opacity. In an effort to maintain good air pollution control practices and minimize monitoring downtime, BPH contracted Alliance Source Testing to install temporary monitoring equipment (CEMs) in the bypass stack to serve as a backup for the monitoring of SO_2, NOx, and CO in case the CEMs in the Regenerator offgas line developed problems that could affect their reliability. In general, downtime for BPH's CEMS is reported only when both BPH's CEMS and Alliance's CEMS were down.

During the bypass stack use, Alliance Source Testing CEMs had several days where daily calibrations failed due to a plugged probe. At the same time, BPH's FCC Regen NOx and SO2 CEMs failed for two periods of time due to low sample flow. Both the FCC Regen NOx and SO2 CEMs had greater than 5% downtime this quarter due to the short operating time of the bypass stack.

September 20, 2022 – BPH Fire

On September 20, 2022, BPH experienced a fire near the Crude Vac 1 unit and TIU mix drum, causing a refinery wide shutdown. This fire resulted in damage to a portion of the hydrocarbon flare system, which includes a flare gas recovery compressor system, and it impacted the quality of the fuel going to the fuel gas system. BPH's flare gas recovery system is offline, and BPH continuously flared during the shutdown and deinventoring process starting on September 20, 2022 and continuing through the end of the quarter.

As a result of the fire, BPH initiated an immediate shutdown of all processing feeds. Once the fire was extinguished, BPH began a longer shutdown process to safely deinventory, purge and park units until such time as the Refinery commences startup.

As part of this shutdown, there were excess emissions from the SRUs. BPH is reporting these Excess Emission hours in the SRU summary tables under the startup/shutdown lines. This is not a violation of 40 CFR 60 Subpart Ja, pursuant to 40 CFR 60.8(c), which states that emissions during startup, shutdown, and malfunction shall not be considered a violation of the applicable emissions limit unless otherwise specified in the applicable standard.

Due to nitrogen and steam purges for equipment and units that have already been deinventoried and cleaned, the hydrocarbon flare system will continuously flare with the potential for excess emissions until flare gas recovery can be safely restarted as stated in the malfunction follow-up notification submitted to TDES on October 7, 2022. These excess emissions are included in this report.

Data Assessment Report (Attachment B)

In accordance with the terms and conditions of the Refinery's Title V permit Attachment B includes the Continuous Emission Monitor (CEM) Data Assessment Report (DAR) for this quarter. Table 2 below is a summary of Cylinder Gas Audits conducted this quarter. Where noted in Table 2, Relative Accuracy Test Audits

(RATAs) were conducted this quarter; these reports were submitted previously via Air Services.

Table 2. Cylinder Gas Audit Summary

Location/Emission Unit	Parameter	Notes
East Side Fuel Gas Mix Drum (B008, B009, B010)	H2S	9/15/2022
TIU Fuel Gas Mix Drum (B015, B017, B019, B022, B029, B030, B031, B032, B033, B034, B035, P007)	H_2S	8/16/2022
B036 - Reformer 3 Heater H2S CMS	H_2S	9/15/2022
P003 - East Flare	H_2S	7/9/2022
P004 - West Flare	H_2S	7/9/2022
P003 - East Flare (low & high ranges)	Total Sulfur	9/7/2022
P004 - West Flare (low & high ranges)	Total Sulfur	9/6/2022
TIU Fuel Gas Mix Drum (B015, B017, B019, B022, B029, B030, B031, B032, B033, B034, B035, P007)	Total Sulfur	8/15/2022
B036 - Reformer 3 NOx/O2 CEMS	NOx, O_2	9/15/2022
B034 - East Alstom Boiler	NOx, O_2	7/25/2022
B035 - West Alstom Boiler	NOx, O_2	7/25/2022
P007 - FCCU/CO Boiler	SO_2, NOx, CO, O_2	8/24/2022
P007 - FCC Regen Line	SO_2, NOx, CO, CO_2, O_2	9/13/2022
P009 - SRU #1	SO_2, O_2	9/14/2022
P037 - SRU #2 & #3 (TRP SRU)	SO_2, O_2	9/14/2022

The DAR also includes out-of-control (OOC) times for the FCCU/CO Boiler CO CEMS, FCC Regen Line CO, O_2, & CO_2 CEMS, SRU#1 SO_2 & O_2 CEMS, and the TRP SRU SO_2 & O_2 CEMS based on the OOC requirements defined by the MACT general requirements, 40 CFR Part 63.8(c)(7).

CEMS calendar tons reporting

In accordance with the Title V permit, Table 3 includes calendar tons per quarter for certain pollutants for Emission units B034, B035, B036, P004, P003, and P007.

Table 3. CEMS Reporting requirement with calendar tons

Page	Citation	EU	Description	Language	Tons
63	B.5.b)(2)b.v	B036	Reformer Heater	Units subject to NSPS Ja NOx monitoring - quarterly reports require "the total NOx emissions for the calendar quarter (tons)" to be included with the quarterly EER for NOx CEMs	5.02
181	c.12.e)(2)b.v	P007	FCCU	Quarterly EER required for SO2 CEM requires "the total SO2 emissions for the calendar quarter (tons)" to be included	62.31
183	c.12.e)(4)b.v	P007	FCCU	Quarterly EER required for NOx CEM requires "the total NOx emissions for the calendar quarter (tons)" to be included	27.89
290	c.20.e)(2)b.v	P037	SRU 2/3	Quarterly EER required for SO2 CEM requires "the total SO2 emissions for the calendar quarter (tons)" to be included	10.96
428	c.36.e)(4)b.v	B034/B035	Alstom Boilers	Quarterly EER required for NOx CEM requires "the total NOx emissions for the calendar quarter (tons)" to be included	8.49
485	c.40.e)(5)b.v	P003/P004	East/West Flare	Quarterly EER required for H2S CEM requires "the total hydrogen sulfide emissions for the calendar quarter (tons)" to be included	0.24
487	c.40.e)(6)b.v	P003/P004	East/West Flare	Quarterly EER required for Total Sulfur CEM requires "the total sulfur emissions for the calendar quarter (tons)" to be included	22.52

If you have any questions concerning this report, please contact Ashley Zapp (Ashley.Zapp@bp.com) or Cameron Loth (Cameron.Loth@bp.com).

Based on information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete. The Refinery is submitting this report in good faith. This report is grounded in information currently available to the Refinery. The fire and events related to the fire are under investigation. Thus, the Refinery reserves the right to amend, modify, supplement and/or correct information contained within this report at a later date should it deem necessary.

Sincerely,

DocuSigned by:
Des Gillen
90F20640AD13450...

Des Gillen
President - BP-Husky Refining LLC

Attachment A – CMS Summary Report
Attachment B – Data Assessment Report

Attachment A – CMS Summary Report

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Crude 1 Furnace (0448020007B015)

Total Source Operating Time in Reporting Period[2]: 1,482 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Coker 2 Furnace (0448020007B017)

Total Source Operating Time in Reporting Period[2]: 1,616 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

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Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

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Title: President - BP-Husky Refining LLC

Date: October 31, 2022

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FIGURE 1 - SUMMARY REPORT

GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Crude Vac 2 Furnace (0448020007B019)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

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[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

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Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Naphtha Treater Furnace (0448020007B022)

Total Source Operating Time in Reporting Period[2]**:** 1,408 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

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Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: DHT A-Train Furnace (0448020007B029)

Total Source Operating Time in Reporting Period[2]: 1,469 hr (TIU fuel gas was combusted for 1,469 hours and natural gas was combusted for 0 hours for a total of 1,469 hours this quarter)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

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[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

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Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: BGOT Furnace (0448020007B030)

Total Source Operating Time in Reporting Period[2]: 1,504 hr (TIU fuel gas was combusted for 1,504 hours and natural gas was combusted for 0 hours for a total of 1,504 hours this quarter)

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

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Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Vac 1 Furnace (0448020007B031)

Total Source Operating Time in Reporting Period[2]: 1,393 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: Coker 3 Furnace (0448020007B032)

Total Source Operating Time in Reporting Period[2]: 1,398 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

3 For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

1 Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** September 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: East BGOT Furnace (0448020007B033)

Total Source Operating Time in Reporting Period[2]: 1,512 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

3 For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

1 Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: East Alstom Boiler (0448020007B034)

Source Operating Time in Reporting Period[2]: 2,128 hr (TIU fuel gas was combusted for 631 hours and natural gas was combusted for 1,497 hours for a total of 2,128 hours this quarter)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: West Alstom Boiler (0448020007B035)

Total Source Operating Time in Reporting Period[2]: 892 hr (TIU fuel gas was combusted for 643 hours and natural gas was combusted for 249 hours for a total of 892 hours this quarter.)

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.3

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: FCC/CO Boiler (0448020007P007)

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	3
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - TIU MIX DRUM H2S CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B015 - Crude 1 Furnace; **B019** - Crude 2 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034** - East Alstom Boiler; **B035** - West Alstom Boiler; **P007**- FCC/CO Boiler	Yes	No	Continuous Monitoring System	7/16/2022 at 07:00 hours	7/16/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO
B015 - Crude 1 Furnace; **B019** - Crude 2 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034** - East Alstom Boiler; **B035** - West Alstom Boiler; **P007**- FCC/CO Boiler	No	Yes	Continuous Monitoring System	7/29/2022 at 07:00 hours	7/29/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO
B015 - Crude 1 Furnace; **B019** - Crude 2 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034** - East Alstom Boiler; **B035** - West Alstom Boiler; **P007**- FCC/CO Boiler	No	Yes	Continuous Monitoring System	8/20/2022 at 07:00 hours	8/20/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 34.53 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: Crude 1 Furnace (0448020007B015)

Total Source Operating Time in Reporting Period[2]: 1,482 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.0

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 21.02 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: Crude Vac 2 Furnace (0448020007B019)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	1.5

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 6.45 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: Naphtha Treater Furnace (0448020007B022)

Total Source Operating Time in Reporting Period[2]: 1,408 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 2.32 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: DHT A-Train Furnace (0448020007B029)

Total Source Operating Time in Reporting Period[2]: 1,469 hr (TIU fuel gas was combusted for 1,469 hours and natural gas was combusted for 0 hours for a total of 1,469 hours this quarter)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.0

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 3.86 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: BGOT Furnace (0448020007B030)

Total Source Operating Time in Reporting Period[2]: 1,504 hr (TIU fuel gas was combusted for 1,504 hours and natural gas was combusted for 0 hours for a total of 1,504 hours this quarter)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.0

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 11.62 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: Vac 1 Furnace (0448020007B031)

Total Source Operating Time in Reporting Period[2]: 1,393 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.2

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 20.46 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: Coker 3 Furnace (0448020007B032)

Total Source Operating Time in Reporting Period[2]: 1,398 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.1

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 3.86 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: East BGOT Furnace (0448020007B033)

Total Source Operating Time in Reporting Period[2]: 1,512 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	2.0

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 3.86 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: East Alstom Boiler (0448020007B034) and West Alstom Boiler (0448020007B035)

Source Operating Time in Reporting Period[2]: 2,659 hr (TIU fuel gas was combusted for 643 hours in at least one of the Alstom Boilers for the quarter. Natural gas was combusted for 2,016 hours in both Alstom Boilers for the quarter.)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	28
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	2
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	1.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen DocuSigned by:

Signature: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - TIU MIX DRUM TS CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B015 - Crude 1 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034/B035** - East and West Alstom Boilers; **P007**- FCC/CO Boiler	Yes	No	Continuous Monitoring System	8/16/2022 at 06:00 hours	8/17/2022 at 10:00 hours	CEMS out-of-control time for 28 hours	Analyzer Failure	Calibration gas was leaking causing failed calibration. Maintenance was performed. Analyzer returned to service.	NO	NO	NO
B015 - Crude 1 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034/B035** - East and West Alstom Boilers; **P007**- FCC/CO Boiler	No	Yes	Continuous Monitoring System	8/15/2022 at 10:00 hours	8/15/2022 at 11:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
B015 - Crude 1 Furnace; **B022** - Naphtha Treater Furnace; **B029** - DHT A - Train Furnace **B030** - DHT B - Train Furnace; **B031** - Vac 1 Furnace; **B032** - Coker 3 Furnace **B033** - East BGOT Furnace; **B034/B035** - East and West Alstom Boilers; **P007**- FCC/CO Boiler	No	Yes	Continuous Monitoring System	8/17/2022 at 13:00 hours	8/17/2022 at 14:00 hours	CEMS downtime for 1 hours	Maintenance calibration gas check.	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30028039490020

Date of Latest CMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Iso 2 Feed Heater (0448020007B008)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		**CMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	14	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	14	2. Total CMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.71	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30028039490020

Date of Latest CMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Iso 2 Stabilizer Reboiler (0448020007B009)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	14	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	14	2. Total CMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.71	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.10 gr H_2S/dscf fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30028039490020

Date of Latest CMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Iso 2 Splitter Reboiler (0448020007B010)

Total Source Operating Time in Reporting Period[2]: 1,970 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	14	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	14	2. Total CMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.71	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - EAST SIDE MIX DRUM H2S CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
B008 - Iso 2 Feed Heater **B009** - Iso 2 Stabilizer Reboiler **B010** - Iso 2 Splitter Reboiler	Yes	No	Continuous Monitoring System	9/20/2022 at 22:00 hours	9/21/2022 at 12:00 hours	CEMS excess emissions for 14 hours	The refinery fuel gas system was shutdown and all RFG was routed to the flare gas recovery compressors which were overloaded such that there was untreated high sulfur refinery fuel gas being sent through the East Fuel gas mix drum.	The Refinery initiated an immediate shutdown of all processing feeds.	Yes	YES (9/20/2022)	YES (10/7/2022)
B008 - Iso 2 Feed Heater **B009** - Iso 2 Stabilizer Reboiler **B010** - Iso 2 Splitter Reboiler	No	Yes	Continuous Monitoring System	9/15/2022 at 09:00 hours	9/15/2022 at 10:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 162 ppmv H_2S in fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30029994471080

Date of Latest CMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Reformer 3 Furnace (0448020007B036)

Total Source Operating Time in Reporting Period[2]: 1,963 hr (Reformer 3 fuel gas was combusted for 1,963 hours and natural gas was combusted for 0 hours for a total of 1,963 hours this quarter)

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 60 ppmv H_2S in fuel gas on a 365-day rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30029994471080

Date of Latest CMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Reformer 3 Furnace (0448020007B036)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - REFORMER 3 FURNACE H2S CMS REPORT FOR 3RD

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B036 - Reformer 3 Furnace	Yes	No	Continuous Monitoring System	No downtime or excess emissions during this reporting quarter.							

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 162 ppmv H_2S in fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30050531960100

Date of Latest CMS Certification or Audit: 9/9/2022

Process Unit(s) Description: East Flare (0448020007P003)

Total Source Operating Time in Reporting Period[2]: 2,159 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	31	c. Quality assurance calibration	1
d. Other known causes	260	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	291	2. Total CMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	13.5	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - EAST FLARE H2S CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P003 - East Flare	Yes	No	Continuous Monitoring System	9/9/2022 at 14:00 hours	9/9/2022 at 15:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P003 - East Flare	No	Yes	Continuous Monitoring System	7/7/2022 at 19:00 hours	7/8/2022 at 06:00 hours	CEMS excess emissions for 11 hours	Butane sphere compressor system which normally discharges to the FCC, was aligned to the East flare while the FCC was down.	Following startup of the FCC the butane system was rerouted back to the FCC and out of the hydrocarbon flare system.	NO	NO	NO
P003 - East Flare	Yes	No	Continuous Monitoring System	8/19/2022 at 03:00 hours	8/19/2022 at 12:00 hours	CEMS excess emissions for 9 hours	An upset in the Sat Gas Plant caused a PSV to lift and venting from the Depropanizer tower to the flare. This additional process gas was not able to be recovered by the flare gas recovery system, which led to high H2S material to be flared.	Operations adjusted tower operation and the relief valve re-seated. Operations stabilize the Sat Gas Plant and all venting was stopped.	NO	NO	NO
P003 - East Flare	No	Yes	Continuous Monitoring System	8/4/2022 at 19:00 hours	8/5/2022 at 06:00 hours	CEMS excess emissions for 11 hours	A bypass valve around the desalters was inadvertently left open following the completion of the Refinery TAR event which led to fluctuations in the Crude 1 furnace and led to the Crude 1 furnace shutdown. This caused the flare gas recovery compressors to trip offline due to high pressure, which led to high H2S gas to be sent directly to the flares.	The flare gas recovery compressors were re-started as quickly as possible. Once restarted, they remained in-service for the remainder of the Crude 1 furnace incident.	NO	NO	NO
P003 - East Flare	Yes	No	Continuous Monitoring System	9/20/2022 at 03:00 hours	9/30/2022 at 23:00 hours	CEMS excess emissions for 243 hours	A leak from an exchanger caused the Refinery to shutdown the Sat/Gas Plant which led to a large amount of process gas to be sent to Flare Gas Recovery (FGR). FGR compressors were overloaded such that there were that there was high H2S gas sent to the flares. Later that day, a Refinery fire in the area of the Crude/Vac 1 unit and TIU Mix drum lead to the Refinery fuel gas system shutting down. All gas usually recovered by the Refinery fuel gas compressors was routed to the flare such that there was high H2S gas sent to the flares.	Following the fire, the Refinery initiated an immediate shut down of all processing feeds. Once the fire was extinguished, the Refinery began a longer shutdown process to deinventory and purge units until the Refinery was shut down and all Refinery units were in “safe park” status. Once the initial refinery shutdown was complete and the units were in "safe park" status, process gas needing to be flared was balanced to only one or the other flare, not both at the same time. This is an ongoing incident and the refinery is working through repairs and corrective actions.	YES	YES (9/20/2022)	YES (10/7/2022)

Excess Emission and Monitoring System Performance Report
East Flare H2S CEMS Report (Source # P003)
3Q 2021

In accordance with the applicable PTIs for this source, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

During the third quarter of 2022, the East Flare operated for a total of 2,159 hours. There were four periods of excess emissions for a total of 291 hours, which accounted for 12.7% of the source's operating time.

The first period of excess emissions was quantified as 290 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 13 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 7/7/2022 at 19:00 hours to 7/8/2022 at 6:00 hours

The second period of excess emissions was quantified as 7,290 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 665 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/4/2022 at 19:00 hours to 8/5/2022 at 6:00 hours

The third period of excess emissions was quantified as 6,422 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 28 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/19/2022 at 3:00 hours to 8/19/2022 at 12:00 hours

The fourth period of excess emissions was quantified as 1,511 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 12,720 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 9/20/2022 at 3:00 hours to 9/30/2022 at 23:00 hours (intermittently)

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

Period 1: During the TIU TAR, while the FCC was out of service, the butane sphere compressor system was aligned to the East flare. While operating in this configuration, the butane spheres received a delivery of isobutane and when the displaced gas routed to the flare, it picked up residual H_2S in the flare and caused an exceedance of the 162 ppm 3-hour average limit.

Period 2: During the Crude 1 furnace and Crude 1 tower upset caused by the bypass valve to the Crude desalter being left open, the Alky 3 unit underwent an emergency shutdown due to an acid carryover event. These simultaneous events caused additional load on the flare gas recovery system, which caused high H2S gas to be flared instead of recovered by the compressors.

Period 3: An upset in the Sat Gas Plant caused the Debutanizer PSV to lift to the flare and also required venting ethane from the Depropanizer tower to the flare. This additional process gas was not able to be recovered by the flare gas recovery system, which led to high H_2S material to be flared.

Period 4: On September 20, 2022, BPH experienced a fire near the Crude Vac 1 (CV1) unit and TIU mix drum, causing a refinery wide shutdown. This fire resulted in damage to a portion of the hydrocarbon flare system, which includes a flare gas recovery compressor system, and it impacted the quality of the fuel going to the fuel gas system. BPH's flare gas recovery system is offline, and BPH continuously flared during the shutdown and deinventoring process starting on September 20, 2022 and continuing intermittently through the end of the quarter.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There was one period of downtime for the quarter while the source was in operation.

- 9/9/2022 at 14:00 hours to 9/9/2022 at 15:00 hours

The downtime period was due to the quarterly cylinder gas audit. The analyzer was recalibrated and returned to service.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: NA - Analyzer used to calculate SO_2 emissions

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-10430115

Date of Latest CMS Certification or Audit: TS Low: 9/07/2022; TS High: 9/07/2022

Process Unit(s) Description: East Flare (0448020007P003)

Total Source Operating Time in Reporting Period[2]: 2,159 hr

Emission Data Summary		**CEMS Perfomance Summary**	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	NA	a. Monitor equipment malfunctions	3
b. Control equipment problems	NA	b. Non-monitor equipment malfunctions	0
c. Process Problems	NA	c. Quality assurance calibration	4
d. Other known causes	NA	d. Other known causes	0
e. Unknown causes	NA	e. Unknown causes	0
2. Total duration of excess emissions	NA	2. Total CEMS Downtime	7
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	NA	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.3

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - EAST FLARE TS CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P003 - East Flare	Yes	No	Continuous Monitoring System	8/2/2022 at 07:00 hours	8/2/2022 at 10:00 hours	CEMS out-of-control time for 3 hours	Gas select valve failure caused failed daily calibration.	Replaced model 50 valve. Recalibrated and returned analyzer to service.	NO	NO	NO
P003 - East Flare	Yes	No	Continuous Monitoring System	9/7/2022 at 11:00 hours	9/7/2022 at 15:00 hours	CEMS downtime for 4 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 162 ppmv H_2S in fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 30050531960400

Date of Latest CMS Certification or Audit: 9/9/2022

Process Unit(s) Description: West Flare Vent Gas (0448020007P004)

Total Source Operating Time in Reporting Period[2]: 1,809 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	46	c. Quality assurance calibration	3
d. Other known causes	29	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	75	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	4.15	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.17

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: H_2S

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 162 ppmv H_2S in fuel gas on a 3-hr rolling average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Siemens Maxum II, SN: 009300

Date of Latest CMS Certification or Audit: 8/16/2022

Process Unit(s) Description: West Flare C Valve (0448020007P004)

Total Source Operating Time in Reporting Period[2]: 1,809 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	NA	b. Non-monitor equipment malfunctions	3
c. Process Problems	NA	c. Quality assurance calibration	0
d. Other known causes	NA	d. Other known causes	0
e. Unknown causes	NA	e. Unknown causes	0
2. Total duration of excess emissions	NA	2. Total CMS Downtime	3
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	NA[4]	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.2

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

[4] Excess emissions are reported in the West Flare Vent Gas section, and are not included in this section to avoid double counting.

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - WEST FLARE H2S CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P004 - West Flare	Yes	No	Continuous Monitoring System	9/9/2022 at 09:00 hours	9/9/2022 at 12:00 hours	CEMS downtime for 3 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P004 - West Flare	No	Yes	Continuous Monitoring System	8/6/2022 at 06:00 hours	8/6/2022 at 12:00 hours	CEMS excess emissions for 6 hours	Simultaneous events in Crude 1 and Alky 3 caused additional load on the flare gas recovery system, which caused high H2S gas to be flared instead of recovered by the compressors.	The top pump around on the Crude tower was re-established, and the overhead gas was directed out of the flare gas recovery system and back to the FCC Overhead Drum. This allowed the load to the flare gas recovery compressors to lessen so that all of the gas could be treated and recovered prior to being sent to the flare.	NO	NO	NO
P004 - West Flare	Yes	No	Continuous Monitoring System	8/19/2022 at 03:00 hours	8/19/2022 at 11:00 hours	CEMS excess emissions for 8 hours	An upset in the Sat Gas Plant caused a PSV to lift and venting from the Depropanizer tower to the flare. This additional process gas was not able to be recovered by the flare gas recovery system, which led to high H2S material to be flared.	Operations adjusted tower operation and the relief valve re-seated. Operations stabilized the Sat Gas Plant and all venting was stopped.	NO	NO	NO
P004 - West Flare	Yes	No	Continuous Monitoring System	8/1/2022 at 14:00 hours	8/1/2022 at 23:00 hours	CEMS excess emissions for 9 hours	A pressure controller was inadvertently left aligned to the flare. Whenever this pressure controller opened up, the extra gas took up a large amount of flare gas recovery compressor capacity, and normal operational production variations or upsets were not able to be recovered to the flare gas. This caused higher H2S fuel gas to be flared.	The pressure controller valve was realigned to the Coker Wet Gas Compressor which freed up capacity in the flare gas recovery system.	NO	NO	NO
P004 - West Flare	Yes	No	Continuous Monitoring System	8/3/2022 at 13:00 hours	8/3/2022 at 19:00 hours	CEMS excess emissions for 6 hours	A pressure controller was inadvertently left aligned to the flare. Whenever this pressure controller opened up, the extra gas took up a large amount of flare gas recovery compressor capacity, and normal operational production variations or upsets were not able to be recovered to the flare gas. This caused higher H2S fuel gas to be flared.	The pressure controller valve was realigned to the Coker Wet Gas Compressor which freed up capacity in the flare gas recovery system.	NO	NO	NO
P004 - West Flare	Yes	No	Continuous Monitoring System	8/4/2022 at 05:00 hours	8/4/2022 at 09:00 hours	CEMS excess emissions for 4 hours	A pressure controller was inadvertently left aligned to the flare. Whenever this pressure controller opened up, the extra gas took up a large amount of flare gas recovery compressor capacity, and normal operational production variations or upsets were not able to be recovered to the flare gas. This caused higher H2S fuel gas to be flared.	The pressure controller valve was realigned to the Coker Wet Gas Compressor which freed up capacity in the flare gas recovery system.	NO	NO	NO

BP-HUSKY REFINING LLC - WEST FLARE H2S CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P004 - West Flare	Yes	No	Continuous Monitoring System	8/4/2022 at 19:00 hours	8/5/2022 at 08:00 hours	CEMS excess emissions for 13 hours	A bypass valve around the desalters was inadvertently left open following the completion of the Refinery TAR event which led to fluctuations in the Crude 1 furnace and led to the Crude 1 furnace shutdown. This caused the flare gas recovery compressors to trip offline due to high pressure, which led to high H2S gas to be sent directly to the flares.	The flare gas recovery compressors were re-started as quickly as possible. Once restarted, they remained in-service for the remainder of the Crude 1 furnace incident.	NO	NO	NO
P004 - West Flare	Yes	No	Continuous Monitoring System	9/20/2022 at 03:00 hours	9/21/2022 at 08:00 hours	CEMS excess emissions for 29 hours	A leak from an exchanger caused the Refinery to shutdown the Sat/Gas Plant which led to a large amount of process gas to be sent to Flare Gas Recovery (FGR). FGR compressors were overloaded such that there were that there was high H2S gas sent to the flares. Following that event, a Refinery fire in the area of the Crude/Vac 1 unit and TIU Mix drum led to the Refinery fuel gas system shutting down. All gas usually recovered by the Refinery fuel gas compressors was routed to the flare such that there was high H2S gas sent to the flares.	Following the fire, the Refinery initiated an immediate shutdown of all processing feeds. Once the fire was extinguished, the Refinery began a longer shutdown process to deinventory and purge units until the Refinery was shut down and all Refinery units were in “safe park” status. Once the initial refinery shutdown was complete and the units were in "safe park" status, process gas needing to be flared was balanced to only one or the other flare, not both at the same time. This is an ongoing incident and the refinery is working through repairs and corrective actions.	YES	YES (9/20/2022)	YES (10/7/2022)
P004 - West Flare "C" Valve	Yes	No	Continuous Monitoring System	7/16/2022 at 07:00 hours	7/16/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO
P004 - West Flare "C" Valve	Yes	No	Continuous Monitoring System	7/29/2022 at 07:00 hours	7/29/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO
P004 - West Flare "C" Valve	Yes	No	Continuous Monitoring System	8/20/2022 at 07:00 hours	8/20/2022 at 08:00 hours	CEMS downtime for 1 hours	Daily Calibration ran twice in a row	Vivicom system triggered two validation cycles, both passing.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
West Flare H2S CEMS Report (Source # P004)
3Q 2022

In accordance with the applicable PTIs for this source, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

During the third quarter of 2022, the West Flare operated for a total of 1,809 hours. There were seven (7) periods of excess emissions for a total of 75 hours, which accounted for 4.2% of the source's operating time.

The first period of excess emissions was quantified as 1,176 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 56 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/1/2022 at 14:00 hours to 8/1/2022 at 23:00 hours

The second period of excess emissions was quantified as 1,732 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in approximately 13 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/3/2022 at 13:00 hours to 8/3/2022 at 19:00 hours

The third period of excess emissions was quantified as 7,173 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in 51 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/4/2022 at 5:00 hours to 8/4/2022 at 9:00 hours

The fourth period of excess emissions was quantified as 9,518 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in 1,875 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/4/2022 at 19:00 hours to 8/5/2022 at 8:00 hours

The fifth period of excess emissions was quantified as 28,127 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in 39 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/6/2022 at 6:00 hours to 8/6/2022 at 12:00 hours

The sixth period of excess emissions was quantified as 3,627 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in 75 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 8/19/2022 at 3:00 hours to 8/19/2022 at 11:00 hours

The seventh period of excess emissions was quantified as 12,105 ppm above the permitted 162-ppm 3-hour, rolling average of H_2S, resulting in 20,309 lbs of excess SO_2 released. Date and time of commencement and completion of this period of excess emissions are as follows:

- 9/20/2022 at 3:00 hours to 9/21/2022 at 8:00 hours

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

Periods 1, 2 and 3: When starting up after the refinery turnaround, the Naphtha Hydrotreater Feed drum pressure controller PV-7505B was inadvertently left aligned to the flare. Whenever this pressure controller opened up, the extra gas from the feed drum took up a large amount of flare gas recovery compressor capacity, and normal operational production variations or upsets were not able to be recovered to the flare gas. This caused higher H2S fuel gas to be flared.

Period 4: A manual 10” bypass valve around the desalters was inadvertently left open following the completion of the refinery TAR event. This allowed raw crude to bypass both desalters. This bypass caused elevated water content in the crude being heated in the Crude 1 furnace and these fluctuations in crude composition translated into fuel gas pressure fluctuations that ultimately led to the Crude 1 furnace shutdown. The unexpected shutdown of the Crude 1 furnace and cut in crude rates led to a domino effect in downstream process units. This caused the flare gas recovery compressors to trip offline due to high pressure, which led to high H2S gas to be sent directly to the flares.

Period 5: During the Crude 1 furnace and Crude 1 tower upset caused by the bypass valve to the Crude desalter being left open, the Alky 3 unit underwent an emergency shutdown due to an acid carryover event. These simultaneous events caused additional load on the flare gas recovery system, which caused high H2S gas to be flared instead of recovered by the compressors.

Period 6: An upset in the Sat Gas Plant caused the Debutanizer PSV to lift to the flare and also required venting ethane from the Depropanizer tower to the flare. This additional process gas was not able to be recovered by the flare gas recovery system, which led to high H2S material to be flared.

Period 7: On September 20, 2022, BPH experienced a fire near the Crude Vac 1 (CV1) unit and TIU mix drum, causing a refinery wide shutdown. This fire resulted in damage to a portion of the hydrocarbon flare system, which includes a flare gas recovery compressor system, and it impacted the quality of the fuel going to the fuel gas system.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There was one period of downtime for the quarter while the source was in operation.

- 9/9/2022 at 9:00 hours to 9/9/2022 at 12:00 hours

The period of downtime was due to the quarterly cylinder gas audit. Analyzer was recalibrated and returned to service.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: NA - Analyzer used to calculate SO2 emissions

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-10440115

Date of Latest CMS Certification or Audit: TS Low: 9/06/2022; TS High: 9/06/2022

Process Unit(s) Description: West Flare Vent Gas (0448020007P004)

Total Source Operating Time in Reporting Period[2]: 1,809 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	NA	a. Monitor equipment malfunctions	0
b. Control equipment problems	NA	b. Non-monitor equipment malfunctions	0
c. Process Problems	NA	c. Quality assurance calibration	6
d. Other known causes	NA	d. Other known causes	0
e. Unknown causes	NA	e. Unknown causes	0
2. Total duration of excess emissions	NA	2. Total CEMS Downtime	6
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	NA	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.33

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: Total Sulfur

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: NA - Analyzer used to calculate SO2 emissions

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Thermo Scientific SOLA II, SN: SL-09030713

Date of Latest CMS Certification or Audit: 8/15/2022

Process Unit(s) Description: West Flare C Valve (0448020007P004)

Total Source Operating Time in Reporting Period[2]: 1,809 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	NA	a. Monitor equipment malfunctions	28
b. Control equipment problems	NA	b. Non-monitor equipment malfunctions	0
c. Process Problems	NA	c. Quality assurance calibration	2
d. Other known causes	NA	d. Other known causes	0
e. Unknown causes	NA	e. Unknown causes	0
2. Total duration of excess emissions	NA	2. Total CEMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	NA	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	1.7

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - WEST FLARE TS CMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
P004 - West Flare	No	Yes	Continuous Monitoring System	9/6/2022 at 08:00 hours	9/6/2022 at 14:00 hours	CEMS downtime for 6 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P004 - West Flare "C" Valve	No	Yes	Continuous Monitoring System	8/16/2022 at 06:00 hours	8/17/2022 at 10:00 hours	CEMS out-of-control time for 28 hours	Analyzer Failure	Calibration gas was leaking causing failed calibration. Maintenance was performed. Analyzer returned to service.	NO	NO	NO
P004 - West Flare "C" Valve	No	Yes	Continuous Monitoring System	8/15/2022 at 10:00 hours	8/15/2022 at 11:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P004 - West Flare "C" Valve	No	Yes	Continuous Monitoring System	8/17/2022 at 13:00 hours	8/17/2022 at 14:00 hours	CEMS downtime for 1 hours	Maintenance calibration gas check.	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 40 ppm_{vd} (30-day rolling average)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2

Date of Latest CEMS Certification or Audit: 9/15/2022

Process Unit(s) Description: Reformer 3 Furnace (0448020007B036)

Total Source Operating Time in Reporting Period[2]: 1,963 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CEMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - REFORMER 3 FURNACE NOx CEMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B036 - Reformer 3 Furnace	No	Yes	Continuous Emission Monitoring System (CEMS)	9/15/2022 at 13:00 hours	9/15/2022 at 14:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: CO

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 500 ppmv CO, db, 1-hr average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB URAS 14, SN: 3.240684.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown[4]:	49	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	49	2. Total CMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	15.1	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

[4] Shutdown emissions are exempt per 40 CFR 60.8(c)

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC REGEN VENT CO CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/26/2022 at 14:00 hours	7/28/2022 at 10:00 hours	CEMS excess emissions for 44 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/28/2022 at 11:00 hours	7/28/2022 at 12:00 hours	CEMS excess emissions for 1 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/28/2022 at 13:00 hours	7/28/2022 at 17:00 hours	CEMS excess emissions for 4 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
FCC Exhaust Bypass Unit CEMS Report (Source # P007)
3Q2022

In accordance with the Title V Permit, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

The FCC Bypass operated for a total of 325 hours in 3Q. There were three periods of excess emissions for this CEMS. Total excess emissions from these periods exceeded 500 ppm CO on a rolling 1-hr. basis.

- Start time: 7/26/2022 at 14:00
  End time: 7/28/2022 10:00
  Duration: 44 hours
- Start time: 7/28/2022 at 11:00
  End time: 7/28/2022 12:00
  Duration: 1 hours
- Start time: 7/28/2022 at 13:00
  End time: 7/28/2022 17:00
  Duration: 4 hours

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

These periods of excess emissions were during the FCCU and CO Boiler start-up following the refinery-wide turnaround. As part of the normal startup process, torch oil is introduced into FCC to warm the unit. The FCCU Bypass stack was in use during this time as well as the CO Boiler stack (dual stack operation). During this period the CO increased above the 500 ppm 1-hr average limit; however, the MACT UUU work standard practices were followed at this time. These Excess Emissions are exempt per 40 CFR 60.8(C).

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There were no periods of CEMS out-of-control time for the quarter while the source was in operation.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 58.1 ppmv NOx db @ 0% O2 (365-day rolling avg)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240682.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	108	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	52
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	108	2. Total CMS Downtime	52
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	33.2	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	16.0

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 93.4 ppmv NOx db @ 0% O2 (7-day rolling avg)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240682.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	52
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	52
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	16.0

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC REGEN VENT NOx CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/30/2022 at 22:00 hours	8/4/2022 at 10:00 hours	CEMS excess emissions for 108 hours	Following the startup of the FCCU and CO Boiler the Refinery was unable to route the FCC Regenerator gas into the CO Boiler. This led to higher emissions due to a limited ability to treat NOx under these operating conditions.	The Regen gas was re-routed out of the Bypass stack and into the CO Boiler. Once this was done, the NOx-out system was able to be further optimized and other operational changes made to the Boiler to reduce daily NOx emissions below the long term permit limit of 58.1 ppm.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	7/30/2022 at 07:00 hours	7/31/2022 at 11:00 hours	CEMS out-of-control time for 28 hours	Low sample gas flow	Adjusted flows. Recalibrated and Returned to service.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	8/2/2022 at 09:00 hours	8/3/2022 at 09:00 hours	CEMS out-of-control time for 24 hours	Low sample gas flow	Cleared sample line and adjusted flows. Recalibrated and Returned to service.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
FCC Exhaust Bypass Unit CEMS Report (Source # P007)
3Q2022

In accordance with the Title V Permit, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

The FCC Bypass operated for a total of 325 hours in 3Q. There was one period of excess emissions for this CEMS. Total excess emissions from these periods exceeded 58.1 ppm NO_X on a rolling 365-day basis.

- Start time: 7/30/2022 at 22:00
  End time: 8/4/2022 10:00
  Duration: 108 hours

  Note: This exceedance ended when the bypass was no longer in use.

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

This period of excess emissions followed the startup of the FCC and CO Boiler after a refinery-wide turnaround event, the butterfly valve separating the two units became stuck and the refinery was unable to route the FCC Regenerator gas into the CO Boiler. During this time, the CO Boiler increased firing to generate steam which resulted in excess NO_X emissions. After significant troubleshooting efforts over several days, Operations was finally able to get the valve to open. The Regen gas was re-routed out of the Bypass stack and into the CO Boiler. Once this was done, the NOx-out system was able to be further optimized and other operational changes made to the Boiler to reduce daily NOx emissions below the long-term permit limit of 58.1 ppm

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There were two periods of CEMS out-of-control time for the quarter while the source was in operation and are as listed below:

- Start time: 7/30/2022 7:00
  End time: 7/31/2022 11:00
  Duration: 28 hours

Excess Emission and Monitoring System Performance Report
FCC Exhaust Bypass Unit CEMS Report (Source # P007)
3Q2022

- Start time: 8/2/2022 9:00
  End time: 8/3/2022 9:00
  Duration: 24 hours

Both out-of-control periods were due to the issues with the sample line. The sample line was cleared, and flows were adjusted.

During the bypass stack use, Alliance Source Testing CEMs had several days where daily calibrations failed due to a plugged probe. At the same time, BPH's FCC Regen NOx and SO2 CEMs failed for two periods of time due to low sample flow. Both the FCC Regen NOx CEMs had greater than 5% downtime this quarter due to the short operating time of the bypass stack.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 260 ppmvd SO2 at 0% excess O2 as a rolling 7-day average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240685.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	49
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	49
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	15.1

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 160 ppmvd SO2 at 0% excess O2 as a rolling 365-day average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240685.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	49
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	49
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	15.1

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 1,020 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240685.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	49
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	49
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	15.1

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.92 lb SO2 per 1000 lb of fresh feed

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2, SN: 3.240685.3

Date of Latest CEMS Certification or Audit: 9/13/2022

Process Unit(s) Description: FCCU/CO Boiler Bypass, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 325 hr

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	49
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	49
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	15.1

[2] Record all times in hours. hours of operation are defined as when FCCU feed was in the unit and the CO Boiler bypass stack was in service.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent of greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

To improve CEMS reliability and reduce risk to personnel performing maintenance on this CEMS, the sample probe length was reduced to extend 9 inches beyond the duct wall. The metallurgy was also upgraded to 304H SS, which is a corrosion resistant alloy that will reduce the frequency of abrasion failures in the system. These modifications were submitted in a letter to TDES in January 2021.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC REGEN VENT SO2 CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	7/30/2022 at 07:00 hours	7/31/2022 at 08:00 hours	CEMS out-of-control time for 25 hours	Low sample gas flow	Adjusted flows. Recalibrated and Returned to service.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	7/31/2022 at 08:00 hours	8/1/2022 at 08:00 hours	CEMS out-of-control time for 24 hours	Low sample gas flow	Adjusted flows. Recalibrated and Returned to service.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
FCC Exhaust Bypass Unit CEMS Report (Source # P007)
3Q2022

In accordance with the Title V Permit, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

The FCC Bypass operated for a total of 325 hours in 3Q. There were no periods of excess emissions during the quarter.

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

No excess emissions during the reporting period.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There were two periods of CEMS out-of-control time for the quarter while the source was in operation and are as listed below:

- Start time: 7/30/2022 7:00
  End time: 7/31/2022 8:00
  Duration: 25 hours

- Start time: 7/31/2022 8:00
  End time: 8/1/2022 8:00
  Duration: 24 hours

Both out-of-control periods were due to the issues with the sample line. The sample line was cleared, and flows were adjusted.

During the bypass stack use, Alliance Source Testing CEMs had several days where daily calibrations failed due to a plugged probe. At the same time, BPH's FCC Regen NOx and SO_2 CEMs failed for two periods of time due to low sample flow. The FCC Regen SO_2 CEMs had greater than 5% downtime this quarter due to the short operating time of the bypass stack.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: CO

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 500 ppmv CO, db, 1-hr average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB URAS 26, SN: 3.347698.3

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown[4]:	49	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	49	2. Total CEMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	3.9	3. Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

[4] Shutdown emissions are exempt per 40 CFR 60.8(c)

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC/CO BOILER CO CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	8/24/2022 at 10:00 hours	8/24/2022 at 11:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/26/2022 at 14:00 hours	7/28/2022 at 10:00 hours	CEMS excess emissions for 44 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/28/2022 at 11:00 hours	7/28/2022 at 12:00 hours	CEMS excess emissions for 1 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/28/2022 at 13:00 hours	7/28/2022 at 17:00 hours	CEMS excess emissions for 4 hours	Startup of the FCCU and CO Boiler following the refinery wide turnaround the CO was exceeded.	Followed startup procedures used to help minimize CO emissions.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
CO Boiler Unit CEMS Report (Source # P007)
3Q2022

In accordance with the Title V Permit, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

The CO Boiler operated for a total of 1,273 hours in 3Q. There were three periods of excess emissions for this CEMS. Total excess emissions from these periods exceeded 500 ppm CO on a rolling 1-hr. basis.

- Start time: 7/26/2022 at 14:00
  End time: 7/28/2022 10:00
  Duration: 44 hours
- Start time: 7/28/2022 at 11:00
  End time: 7/28/2022 12:00
  Duration: 1 hours
- Start time: 7/28/2022 at 13:00
  End time: 7/28/2022 17:00
  Duration: 4 hours

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

These periods of excess emissions were during the FCCU and CO Boiler start-up following the refinery-wide turnaround. As part of the normal startup process, torch oil is introduced into FCC to warm the unit. The FCCU Bypass stack was in use during this time as well as the CO Boiler stack (dual stack operation). During this period the CO increased above the 500 ppm 1-hr. limit; however, the MACT UUU work standard practices were followed at this time. These Excess Emissions are exempt per 40 CFR 60.8(C).

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There was one period of CEMS downtime for the quarter while the source was in operation. This downtime periods was part of the quarterly CGA.

- Start time: 8/24/2022 at 10:00
  End time: 8/24/2022 11:00
  Duration: 1 hours

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 93.4 ppmv NOx db @ 0% O2 (7-day rolling avg)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 58.1 ppmv NOx db @ 0% O2 (365-day rolling avg)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	720	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	720	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	56.6	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC/CO BOILER NOx CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	Yes	No	Continuous Emissions Monitoring System (CEMS)	7/30/2022 at 22:00 hours	8/29/2022 at 22:00 hours	CEMS excess emissions for 720 hours	Following the startup of the FCCU and CO Boiler the Refinery was unable to route the FCC Regenerator gas into the CO Boiler. This led to higher emissions due to a limited ability to treat NOx under these operating conditions.	The Regen gas was re-routed out of the Bypass stack and into the CO Boiler. Once this was done, the NOx-out system was able to be further optimized and other operational changes made to the Boiler to reduce daily NOx emissions below the long term permit limit of 58.1 ppm.	NO	NO	NO
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	8/24/2022 at 10:00 hours	8/24/2022 at 11:00 hours	CEMS downtime for 1 hours	Quarterly Linearity Test	Recalibrated and Returned Analyzer to service.	NO	NO	NO

In accordance with the Title V Permit, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

The CO Boiler operated for a total of 1,273 hours in 3Q. There was one period of excess emissions for this CEMS. Total excess emissions from these periods exceeded 58.1 ppm NOX on a rolling 365-day basis.

- Start time: 7/30/2022 at 22:00
  End time: 8/29/2022 22:00
  Duration: 720 hours

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

This period of excess emissions followed the startup of the FCC and CO Boiler after a refinery-wide turnaround event, the butterfly valve separating the two units became stuck and the Refinery was unable to route the FCC Regenerator gas into the CO Boiler. During this time, the CO Boiler increased firing to generate steam which resulted in excess NO_X emissions. After significant troubleshooting efforts over several days, Operations was finally able to get the valve to open. The Regen gas was re-routed out of the Bypass stack and into the CO Boiler. Once this was done, the NOx-out system was able to be further optimized and other operational changes made to the Boiler to reduce daily NOx emissions below the long-term permit limit of 58.1 ppm.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There was one period of CEMS downtime for the quarter while the source was in operation and are as listed below:

- Start time: 8/24/2022 10:00
  End time: 8/24/2022 11:00
  Duration: 1 hours

This out-of-control period was due to the Quarterly Linearity Test. The calibration gas was corrected, the analyzer was recalibrated and returned to service.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 260 ppmvd SO2 at 0% excess O2 as a rolling 7-day average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 160 ppmvd SO2 at 0% excess O2 as a rolling 365-day average

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 1,020 tons SO2 per rolling 12-month period

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 0.92 lb SO2 per 1000 lb of fresh feed

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS 106, SN: 3.340641.7

Date of Latest CEMS Certification or Audit: 8/24/2022

Process Unit(s) Description: CO Boiler Exhaust, including FCC Regen Flue Gas, 0448020007P007

Total Source Operating Time in Reporting Period[2]: 1,273 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.1

2 Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

Describe any changes since last quarter in CEMS, process, or controls.

Not Applicable - No changes since the previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - FCC/CO BOILER SO2 CEMS REPORT 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
P007 - FCCU / CO Boiler Bypass Stack	No	Yes	Continuous Emissions Monitoring System (CEMS)	8/24/2022 at 10:00 hours	8/24/2022 at 11:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 250 ppm SO_2 dry, 0% excess O_2 (12-hour average)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Ametek Model 919, SN: ZB-919SP-10541-1

Date of Latest CEMS Certification or Audit: 9/14/2022

Process Unit(s) Description: #1 Claus Sulfur Recovery Unit with SCOT Unit (0448020007P009)

Total Source Operating Time in Reporting Period: 1,514 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown[3]:	211	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	4
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	211	2. Total CEMS Downtime	5
3. Total duration of excess emissions x (100) / [Total source operating time] %[2]	13.9	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.3
[2] For the reporting period:	If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.		
[3] For the reporting period:	Shutdown emissions are exempt per 40 CFR 60.8(c)		

Describe any changes since last quarter in CEMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC SRU #1 SO2 CEMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
P009 - Sulfur Recovery Unit #1	Yes	No	Continuous Emission Monitoring System (CEMS)	7/27/2022 at 05:00 hours	7/28/2022 at 17:00 hours	CEMS excess emissions for 36 hours	During the planned start up of the SRU1 after the facility turnaround, SO2 concentration in the SRU1 Thermal Oxidizer stack exceeded the 250 ppmv SO2 12-hr rolling average.	The SRU1 startup procedures were followed during this startup.	NO	NO	NO
P009 - Sulfur Recovery Unit #1	Yes	No	Continuous Emission Monitoring System (CEMS)	7/30/2022 at 21:00 hours	7/31/2022 at 20:00 hours	CEMS excess emissions for 23 hours	During the planned start up of the SRU1 after the facility turnaround, SO2 concentration in the SRU1 Thermal Oxidizer stack exceeded the 250 ppmv SO2 12-hr rolling average.	The SRU1 startup procedures were followed during this startup.	NO	NO	NO
P009 - Sulfur Recovery Unit #1	Yes	No	Continuous Emission Monitoring System (CEMS)	9/24/2022 at 16:00 hours	10/1/2022 at 00:00 hours	CEMS excess emissions for 152 hours	Following the fire on September 20th, the Refinery restarted the shutdown process for the Sulfur Recovery Unit #1.	The SRU shutdown procedures were followed during this shutdown. The procedure development included evaluating ways to minimize emissions during the shutdown process.	YES	YES (9/20/2022)	YES (10/7/2022)
P009 - Sulfur Recovery Unit #1	Yes	No	Continuous Emission Monitoring System (CEMS)	9/14/2022 at 13:00 hours	9/14/2022 at 14:00 hours	CEMS downtime for 1 hours	CGA Test Completed	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P009 - Sulfur Recovery Unit #1	No	Yes	Continuous Emission Monitoring System (CEMS)	8/1/2022 at 07:00 hours	8/1/2022 at 09:00 hours	CEMS out-of-control time for 2 hours	Recalibrated for drift.	Recalibrated and Returned Analyzer to service.	NO	NO	NO
P009 - Sulfur Recovery Unit #1	No	Yes	Continuous Emission Monitoring System (CEMS)	8/30/2022 at 07:00 hours	8/30/2022 at 09:00 hours	CEMS out-of-control time for 2 hours	Recalibrated for drift.	Recalibrated and Returned Analyzer to service.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
#1 Claus Sulfur Recovery Unit CEMS Report (Source # P009)
3Q2022

In accordance with the applicable PTIs for this source, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

#1 Sulfur Recovery Units operated for a total of 1,514 hours in 3Q. There were three periods of excess emissions for this CEMS. Total excess emissions from these periods exceeded 250 ppm SO_2 on a rolling 12-hour basis.

Period 1

- Start time: 7/27/2022 at 00:00
  End time: 7/28/2022 at 9:00
  Duration: 36 hours
  Note: These EE hours are due to planned startup of the unit. These EE hours are exempt (see cover letter)

Period 2

- Start time: 7/30/2022 at 21:00
  End time: 7/31/2022 at 20:00
  Duration: 23 hours
  Note: These EE hours are due to planned startup of the unit. These EE hours are exempt (see cover letter)

Period 3

- Start time: 9/24/2022 at 16:00
  End time: 10/1/2022 at 00:00
  Duration: 152 hours
  Note: These EE hours are due to shutdown of the unit. These EE hours are exempt (see cover letter)

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

Periods 1 & 2: During the planned startup of the SRU1 after the facility turnaround, startup procedures require diverting around TGTU for personal and process safety reasons. While diverting the TGTU, SO_2 concentration in the Thermal Oxidizer stack #1 exceeded the 250 ppmv SO_2 12-hr rolling average.

Excess Emission and Monitoring System Performance Report
#1 Claus Sulfur Recovery Unit CEMS Report (Source # P009)
3Q2022

Period 3: Following the Crude 1 fire, the Refinery restarted the shutdown process for the Sulfur Recovery Unit #1. As a result of the shutdown, the SO_2 concentration exceeded the 250 ppm 12-hr rolling average.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There were three periods of CEMS downtime for the quarter while the source was in operation, and it is listed below:

- Start time: 8/1/2022 7:00
  End time: 8/1/2022 9:00
  Duration: 2 hours

This out-of-control period was caused by a failed daily calibration. The analyzer was recalibrated and returned to service.

- Start time: 8/30/2022 7:00
  End time: 8/30/2022 9:00
  Duration: 2 hours

This out-of-control period was caused by a failed daily calibration. The analyzer was recalibrated and returned to service.

- Start time: 9/14/2022 13:00
  End time: 9/14/2022 14:00
  Duration: 1 hours

This downtime period was caused due to completion of quarterly cylinder gas audit. The analyzer was recalibrated and returned to service.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: SO_2

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Emission Limitation: 250 ppm SO_2 dry, 0% excess O_2 (12-hour average)

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: Ametek Model 919 and WDG-V, SN: ZX-919-10814-1

Date of Latest CEMS Certification or Audit: 9/14/2022

Process Unit(s) Description: Sulfur Recovery Units # 2 & #3 with TGT #2 (0448020007P037)

Total Source Operating Time in Reporting Period[2]: 1,889 hr

Emission Data Summary		CEMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CEMS downtime in reporting period due to:	
a. Start-up/Shutdown[3]:	191	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	46	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	237	2. Total CEMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time] %[2]	12.5	3. [Total CEMS Downtime] x (100) / [Total source operating time] %[3]	0.05

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

[3] For the reporting period: Shutdown emissions are exempt per 40 CFR 60.8(c)

Describe any changes since last quarter in CEMS, process, or controls.

Not applicable - no changes from previous quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC SRU #2 & SRU #3 SO2 CEMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID / Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "No Reports" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "No Reports" in the space below)
				DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
	Quarterly	Semi-Annual		Date / Time Start	Date / Time End						
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	7/20/2022 at 00:00 hours	7/20/2022 at 09:00 hours	CEMS excess emissions for 9 hours	During the planned start up of the SRU2 after the facility turnaround, SO2 concentration in the TRP Thermal Oxidizer stack exceeded the 250 ppmv SO2 12-hr rolling average.	The SRU startup procedures were followed during this startup.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	7/27/2022 at 15:00 hours	7/29/2022 at 02:00 hours	CEMS excess emissions for 35 hours	During the planned start up of the SRU2 after the facility turnaround, SO2 concentration in the TRP Thermal Oxidizer stack exceeded the 250 ppmv SO2 12-hr rolling average.	The SRU startup procedures were followed during this startup.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	8/17/2022 at 14:00 hours	8/18/2022 at 00:00 hours	CEMS excess emissions for 10 hours	A pluggage in one of the sulfur dip legs coming off of the final sulfur condenser caused corrosion in a process analyzer and it failed. Without the use of this process analyzer, the lead board operator was not able to accurately manage the air to natural gas flow during the startup of the unit, which caused the exceedances.	During each event, operations trouble-shooted the event to bring the SO2 concentration down and to limit the impact of each event. The sulfur dip leg and was unplugged and the corroded process analyzer was repaired.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	8/21/2022 at 17:00 hours	8/22/2022 at 05:00 hours	CEMS excess emissions for 12 hours	A pluggage in one of the sulfur dip legs coming off of the final sulfur condenser caused corrosion in a process analyzer and it failed. Without the use of this process analyzer, the lead board operator was not able to accurately manage the air to natural gas flow during the startup of the unit, which caused the exceedances.	During each event, operations trouble-shooted the event to bring the SO2 concentration down and to limit the impact of each event. The sulfur dip leg and was unplugged and the corroded process analyzer was repaired.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	8/23/2022 at 16:00 hours	8/24/2022 at 04:00 hours	CEMS excess emissions for 12 hours	A pluggage in one of the sulfur dip legs coming off of the final sulfur condenser caused corrosion in a process analyzer and it failed. Without the use of this process analyzer, the lead board operator was not able to accurately manage the air to natural gas flow during the startup of the unit, which caused the exceedances.	During each event, operations trouble-shooted the event to bring the SO2 concentration down and to limit the impact of each event. The sulfur dip leg and was unplugged and the corroded process analyzer was repaired.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	8/26/2022 at 17:00 hours	8/27/2022 at 05:00 hours	CEMS excess emissions for 12 hours	A pluggage in one of the sulfur dip legs coming off of the final sulfur condenser caused corrosion in a process analyzer and it failed. Without the use of this process analyzer, the lead board operator was not able to accurately manage the air to natural gas flow during the startup of the unit, which caused the exceedances.	During each event, operations trouble-shooted the event to bring the SO2 concentration down and to limit the impact of each event. The sulfur dip leg and was unplugged and the corroded process analyzer was repaired.	NO	NO	NO
P037 - Sulfur Recovery Units #2 & #3	Yes	No	Continuous Emission Monitoring System (CEMS)	9/24/2022 at 18:00 hours	9/30/2022 at 21:00 hours	CEMS excess emissions for 147 hours	Following the fire on September 20th, the Refinery restarted the shutdown process for the Sulfur Recovery Unit #2 & #3.	The SRU shutdown procedures were followed during this shutdown. The procedure development included evaluating ways to minimize emissions during the shutdown process.	YES	YES (9/20/2022)	YES (10/7/2022)
P037 - Sulfur Recovery Units #2 & #3	No	Yes	Continuous Emission Monitoring System (CEMS)	9/14/2022 at 09:00 hours	9/14/2022 at 10:00 hours	CEMS downtime for 1 hours	Quarterly CGA	Recalibrated and Returned Analyzer to service.	NO	NO	NO

Excess Emission and Monitoring System Performance Report
#2 and 3 Claus Sulfur Recovery Unit CEMS Report (Source # P037)
3Q2022

In accordance with the applicable PTIs for this source, written reports of excess emissions shall include the following information:

1. The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

#2 and 3 Sulfur Recovery Units operated for a total of 1,889 hours in 3Q. There were seven (7) periods of excess emissions for this CEMS. Total excess emissions from these periods exceeded 250 ppm SO_2 on a rolling 12-hour basis.

Period 1

- Start time: 7/19/2022 at 00:00
  End time: 7/19/2022 at 9:00
  Duration: 9 hours
  Note: These EE hours are due to planned startup of the unit. These EE hours are exempt (see cover letter)

Period 2

- Start time: 7/27/2022 at 15:00
  End time: 7/29/2022 at 2:00
  Duration: 35 hours
  Note: These EE hours are due to planned startup of the unit. These EE hours are exempt (see cover letter)

Period 3

- Start time: 8/17/2022 at 14:00
  End time: 8/18/2022 at 00:00
  Duration: 10 hours

Period 4

- Start time: 8/21/2022 at 17:00
  End time: 8/22/2022 at 5:00
  Duration: 12 hours

Period 5

- Start time: 8/23/2022 at 16:00
  End time: 8/24/2022 at 4:00
  Duration: 12 hours

Period 6

- Start time: 8/26/2022 at 17:00

End time: 8/27/2022 at 5:00
Duration: 12 hours

Period 7

- Start time: 9/24/2022 at 18:00
  End time: 9/30/2022 at 21:00
  Duration: 147 hours
  Note: These EE hours are due to planned startup of the unit. These EE hours are exempt (see cover letter)

2. Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

Periods 1 & 2: During the planned start-up of the SRU2 after the facility turnaround, startup procedures require diverting around TGTU for personal and process safety reasons. While diverting the TGTU, SO_2 concentration in the TRP Thermal Oxidizer stack exceeded the 250 ppmv SO_2 12-hr rolling average.

Periods 3-6: After the refinery turnaround, Operations was attempting to pull acid gas being diverted to Chemtrade back to the Refinery to be processed in SRU2 and SRU3. The concentration of SO_2 in the Tail Gas Unit increased unexpectedly and SO_2 at the Thermal Oxidizer exceeded the limit. Startup procedures were being followed at this time. After four separate attempts trying to pull acid gas back to the process unit, an investigation determined that the sudden increases in SO_2 were caused by pluggage in one of the sulfur dip legs coming off of the final sulfur condenser. This pluggage caused corrosion in a process analyzer and it failed. Without the use of this process analyzer, the lead board operator was not able to accurately manage the air to natural gas flow during the startup of the unit, which caused the exceedances.

Period 7: Following the Crude 1 fire, the Refinery restarted the shutdown process for the Sulfur Recovery Unit #2/3 (SRU2/3). As a result of the shutdown, the SO_2 concentration exceeded the 250 ppm 12-hr rolling average.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

There one period of CEMS downtime for the quarter while the source was in operation, and it is listed below:

Excess Emission and Monitoring System Performance Report
#2 and 3 Claus Sulfur Recovery Unit CEMS Report (Source # P037)
3Q2022

- Start time: 9/14/2022 9:00
  End time: 9/14/2022 10:00
  Duration: 1 hours

This downtime was due to quarterly cylinder gas audit. The analyzer was recalibrated and returned to service.

Additional Information Required under PTI # 04-1046

1. **Total SO_2 emissions during calendar quarter (in tons), including any excess emissions attributed to the malfunction, startup, or shutdown of emissions unit P037. (ST&C III.A.iii)**

   Total SO_2 emissions from the TRP SRUs during the period July 1, 2022, through September 30, 2022, were calculated at 10.96 tons.

2. **Total operating time of the CEMS while either SRU was online. (ST&C III.A.iii)**

   During the quarter, the total source operating time while either or both SRUs were in service was 1,888.9 hours. The CEMS was online and monitoring for 1,858.9 hours while SRUs were in service.

   During the quarter, there were three periods of CEMS out-of-control time or periods of CEMS downtime for a total duration of 30 hours. Details of these events are summarized in the attached table.

3. **Quantification of emissions routed from the SRU to the flare beginning with activation of the relief valve until the release is over. (ST&C VII.A)**

   There were five periods during the third quarter when acid gas was sent to the TRP Acid Gas flare. These periods are explained below.

   Period 1
   Reason: The Refinery's third-party acid gas receiver tripped offline while the SRU 2/3 units were offline for turnaround. Acid Gas was routed back to the Refinery during the upset and had to go to Acid Gas Flare while SRUs were offline.
   Duration: 7/20/2022 at 7:06 hrs. to 7/20/2022 at 7:49 hrs.
   Quantity (SO_2):1,135.8 lbs.

   Period 2
   Reason: The Refinery's third-party acid gas had unit upsets while the SRU 2/3 units were offline for turnaround. Acid Gas was routed back to the Refinery during the upset and had to go to Acid Gas Flare while SRUs were offline.
   Duration: 7/21/2022 at 16:32 hrs to 7/21/2022 at 17:48 hrs
   Quantity (SO_2):1,626.2 lbs.

   Period 3
   Reason: The Refinery's third-party acid gas had unit upsets while the SRU 2/3 units were offline for turnaround. Acid Gas was routed back to the Refinery during the upset and had to go to Acid Gas Flare while SRUs were offline.
   Duration: 7/27/2022 at 7:07 hrs. to 7/27/2022 at 7:10 hrs
   Quantity (SO_2): 63 lbs.

Period 4
Reason: Acid Gas was flared during the emergency shutdown of the SRU 2/3 units following the fire. Following the fire, the natural gas supply line was damaged and there was a period of time when Acid Gas was sent to the TRP Acid Gas Flare while the pilots were not lit.
Duration: 9/20/2022 at 21:35 hrs. to 9/21/2022 at 01:43 hrs
Quantity (SO_2):187.1 lbs.

Period 5
Reason: Acid Gas Flaring occurred intermittently during this period following the emergency shutdown of the SRP following the fire.
Duration: 9/21/2022 at 1:53 hrs to 9/21/2022 at 3:49 hrs
Quantity (SO_2):108.6 lbs.

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2

Monitor Location: Sample port on East Alstom Boiler Stack; monitor housed at ground level in an analyzer building adjacent the boiler.

Date of Latest CMS Cert or Audit: 7/25/2022

Process Unit(s) Description: East Alstom Boiler (0448020007B034)

Total Source Operating Time in Reporting Period: 2,128 hr (TIU fuel gas was combusted for 631 hours and natural gas was combusted for 1,497 hours for a total of 2,128 hours this quarter)

CMS operating time while emission unit was in operation: 2,128 hr

Emission Limitation: 12.71 lb/hr of NO_x emissions;
38.5 tons/rolling 12-month period of NO_x emissions (combined B034 & B035);
0.10 lb NO_x (as NO_2) per mmBtu heat input 30-day rolling average

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - No changes since last quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - EAST ALSTOM BOILER NOx CEMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B034 - East Alstom Boiler	Yes	No	Continuous Monitoring System	No downtime or excess emissions during this reporting quarter.							

East Alstom Boiler - 3rd Quarter 2022 Db Data

NSPS Db: Supplemental Reporting for NOx CEM Records as required by 40 CFR 60.49b

This table contains the information required by 60.49b(g)(1-8).
Records for 60.49b(g)(9-10) are provided in the NSPS Quarterly CEMS Report.

East Alstom Boiler (B034): 353 MMBtu/hr heater fired with refinery fuel gas and/or natural gas

Calculation Methodology: NO_x emissions (lb/mmbtu) calculated from NO_x CEM (ppm) using Methodology in 40 CFR 60 Appendix A Method 19 and F factor of 8710 dscf/mmbtu from Method 19 Table 19-1 when natural gas fired; site-specific F factor determined from fuel analysis when refinery fuel gas fired.

NSPS Limit: 0.10 lb NO_x/MMBtu

Date	Hourly daily average NOx (lb/MMBtu)	30-day rolling average NOx (lb/MMBtu)	Excess Emissions (yes/no)	NOx Conc Exceeded CEM Span? (yes/no)	Comments: Reason for Missing or Invalid Data, or Excess Emissions
7/1/2022	0.029	0.029	No	No	
7/2/2022	0.026	0.031	No	No	
7/3/2022	0.027	0.032	No	No	
7/4/2022	0.027	0.032	No	No	
7/5/2022	0.023	0.032	No	No	
7/6/2022	0.026	0.032	No	No	
7/7/2022	0.030	0.032	No	No	
7/8/2022	0.031	0.032	No	No	
7/9/2022	0.032	0.032	No	No	
7/10/2022	0.032	0.032	No	No	
7/11/2022	0.041	0.032	No	No	
7/12/2022	0.046	0.033	No	No	
7/13/2022	0.038	0.033	No	No	
7/14/2022	0.041	0.033	No	No	
7/15/2022	0.046	0.034	No	No	
7/16/2022	0.043	0.034	No	No	
7/17/2022	0.041	0.035	No	No	
7/18/2022	0.044	0.035	No	No	
7/19/2022	0.043	0.035	No	No	
7/20/2022	0.039	0.035	No	No	
7/21/2022	0.041	0.036	No	No	
7/22/2022	0.048	0.036	No	No	
7/23/2022	0.034	0.036	No	No	
7/24/2022	0.033	0.036	No	No	
7/25/2022	0.034	0.035	No	No	
7/26/2022	0.034	0.035	No	No	
7/27/2022	0.035	0.036	No	No	
7/28/2022	0.037	0.036	No	No	
7/29/2022	0.035	0.036	No	No	
7/30/2022	0.035	0.036	No	No	
7/31/2022	0.033	0.036	No	No	
8/1/2022	0.030	0.036	No	No	
8/2/2022	0.030	0.036	No	No	
8/3/2022	0.030	0.036	No	No	
8/4/2022	0.029	0.036	No	No	
8/5/2022	0.028	0.036	No	No	
8/6/2022	0.029	0.036	No	No	
8/7/2022	0.030	0.036	No	No	
8/8/2022	0.029	0.036	No	No	
8/9/2022	0.031	0.036	No	No	
8/10/2022	0.031	0.036	No	No	
8/11/2022	0.032	0.036	No	No	
8/12/2022	0.033	0.035	No	No	
8/13/2022	0.032	0.035	No	No	
8/14/2022	0.032	0.035	No	No	
8/15/2022	0.032	0.034	No	No	
8/16/2022	0.030	0.034	No	No	
8/17/2022	0.030	0.034	No	No	
8/18/2022	0.032	0.033	No	No	
8/19/2022	0.032	0.033	No	No	
8/20/2022	0.031	0.033	No	No	
8/21/2022	0.030	0.032	No	No	
8/22/2022	0.028	0.032	No	No	
8/23/2022	0.027	0.031	No	No	
8/24/2022	0.028	0.031	No	No	
8/25/2022	0.027	0.031	No	No	
8/26/2022	0.026	0.031	No	No	

Date	Hourly daily average NOx (lb/MMBtu)	30-day rolling average NOx (lb/MMBtu)	Excess Emissions (yes/no)	NOx Conc Exceeded CEM Span? (yes/no)	Comments: Reason for Missing or Invalid Data, or Excess Emissions
8/27/2022	0.027	0.031	No	No	
8/28/2022	0.028	0.030	No	No	
8/29/2022	0.027	0.030	No	No	
8/30/2022	0.028	0.030	No	No	
8/31/2022	0.028	0.030	No	No	
9/1/2022	0.028	0.030	No	No	
9/2/2022	0.028	0.030	No	No	
9/3/2022	0.028	0.029	No	No	
9/4/2022	0.027	0.029	No	No	
9/5/2022	0.027	0.029	No	No	
9/6/2022	0.029	0.029	No	No	
9/7/2022	0.030	0.029	No	No	
9/8/2022	0.030	0.029	No	No	
9/9/2022	0.031	0.029	No	No	
9/10/2022	0.029	0.029	No	No	
9/11/2022	0.028	0.029	No	No	
9/12/2022	0.029	0.029	No	No	
9/13/2022	0.030	0.029	No	No	
9/14/2022	0.031	0.029	No	No	
9/15/2022	0.029	0.029	No	No	
9/16/2022	0.030	0.029	No	No	
9/17/2022	0.031	0.029	No	No	
9/18/2022	0.032	0.029	No	No	
9/19/2022	0.033	0.029	No	No	
9/20/2022	0.036	0.029	No	No	
9/21/2022	0.000	0.029	No	No	
9/22/2022	0.000	0.029	No	No	
9/23/2022	0.000	0.029	No	No	
9/24/2022	0.038	0.030	No	No	
9/25/2022	0.028	0.030	No	No	
9/26/2022	0.028	0.030	No	No	
9/27/2022	0.023	0.029	No	No	
9/28/2022	0.022	0.029	No	No	
9/29/2022	0.022	0.029	No	No	
9/30/2022	0.023	0.029	No	No	

FIGURE 1 - SUMMARY REPORT
GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE[1]

Pollutant: NOx

Reporting Period Dates: **From:** July 1, 2022 **To:** October 1, 2022

Company: BP-Husky Refining LLC

Address: 4001 Cedar Point Road, Oregon, Ohio 43616

Monitor Manufacturer and Model No.: ABB LIMAS 11UV and ABB MAGNOS O2

Monitor Location: Sample port on West Alstom Boiler Stack; monitor housed at ground level in an analyzer building adjacent the boiler.

Date of Latest CMS Certification or Audit: 7/25/2022

Process Unit(s) Description: West Alstom Boiler (0448020007B035)

Total Source Operating Time in Reporting Period: 1,182 hr (TIU fuel gas was combusted for 0 hours and natural gas was combusted for 1,182 hours for a total of 1,182 hours this quarter)

CMS operating time while emission unit was in operation: 1,182 hr

Emission Limitation: 12.71 lb/hr of NO_x emissions;
38.5 tons/rolling 12-month period of NO_x emissions (combined B034 & B035);
0.10 lb NO_x (as NO_2) per mmBtu heat input 30-day rolling average

Emission Data Summary		CMS Perfomance Summary	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Start-up/Shutdown:	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-monitor equipment malfunctions	0
c. Process Problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CEMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time] %[3]	0.0	3. [Total CMS Downtime] x (100) / [Total source operating time] %[3]	0.0

[2] Record all times in hours.

[3] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent

Describe any changes since last quarter in CMS, process, or controls.

Not applicable - No changes since last quarter.

I certify that the information contained in this report is true, accurate, and complete.

Name: Des Gillen

Signature: DocuSigned by: Des Gillen 90F20640AD13450...

Title: President - BP-Husky Refining LLC

Date: October 31, 2022

[1] Form described in 40 CFR 60.7 (d)

BP-HUSKY REFINING LLC - WEST ALSTOM BOILER NOx CEMS REPORT FOR 3RD QUARTER 2022

EMISSIONS UNIT ID/Description	Reporting Requirement (choose one or both)		ACTUAL METHOD USED TO DETERMINE COMPLIANCE	DEVIATION INFORMATION			PROBABLE CAUSE FOR THE DEVIATION	CORRECTIVE ACTIONS / PREVENTATIVE MEASURES TAKEN	WAS DEVIATION ATTRIBUTABLE TO A MALFUNCTION? (Yes or No - If Yes, continue to the next column)	MALFUNCTION VERBAL REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)	MALFUNCTION WRITTEN REPORT DATE (If no reports were made, state "NO REPORTS" in the space below)
	Quarterly	Semi-Annual		DEVIATION DURATION		DESCRIPTION AND MAGNITUDE OF THE DEVIATION					
				Date / Time Start	Date / Time End						
B035 - West Alstom Boiler	Yes	No	Continuous Monitoring System	No downtime or excess emissions during this reporting quarter.							

West Alstom Boiler - 3rd Quarter 2022 Db Data

NSPS Db: Supplemental Reporting for NO_x CEM Records as required by 40 CFR 60.49b

This table contains the information required by 60.49b(g)(1-8).
Records for 60.49b(g)(9-10) are provided in the NSPS Quarterly CEMS Report.

West Alstom Boiler (B035): 353 MMBtu/hr heater fired with refinery fuel gas and/or natural gas

Calculation Methodology: NO_x emissions (lb/mmbtu) calculated from NO_x CEM (ppm) using Methodology in 40 CFR 60 Appendix A Method 19 and F factor of 8710 dscf/mmbtu from Method 19 Table 19-1 when natural gas fired; site-specific F factor determined from fuel analysis when refinery fuel gas fired.

NSPS Limit: 0.10 lb NO_x/MMBtu

Date	Hourly daily average NOx (lb/MMBtu)	30-day rolling average NOx (lb/MMBtu)	Excess Emissions (yes/no)	NOx Conc Exceeded CEM Span? (yes/no)	Comments: Reason for Missing or Invalid Data, or Excess Emissions
7/1/2022	0.031	0.005	No	No	
7/2/2022	0.032	0.005	No	No	
7/3/2022	0.031	0.006	No	No	
7/4/2022	0.032	0.007	No	No	
7/5/2022	0.038	0.008	No	No	
7/6/2022	0.038	0.010	No	No	
7/7/2022	0.041	0.011	No	No	
7/8/2022	0.041	0.012	No	No	
7/9/2022	0.041	0.014	No	No	
7/10/2022	0.043	0.015	No	No	
7/11/2022	0.041	0.016	No	No	
7/12/2022	0.036	0.017	No	No	
7/13/2022	0.035	0.019	No	No	
7/14/2022	0.035	0.020	No	No	
7/15/2022	0.036	0.021	No	No	
7/16/2022	0.035	0.022	No	No	
7/17/2022	0.036	0.023	No	No	
7/18/2022	0.038	0.024	No	No	
7/19/2022	0.036	0.025	No	No	
7/20/2022	0.035	0.027	No	No	
7/21/2022	0.031	0.028	No	No	
7/22/2022	0.036	0.029	No	No	
7/23/2022	0.035	0.030	No	No	
7/24/2022	0.034	0.031	No	No	
7/25/2022	0.036	0.032	No	No	
7/26/2022	0.034	0.033	No	No	
7/27/2022	0.032	0.034	No	No	
7/28/2022	0.034	0.035	No	No	
7/29/2022	0.026	0.036	No	No	
7/30/2022	0.025	0.035	No	No	
7/31/2022	0.029	0.035	No	No	
8/1/2022	0.027	0.035	No	No	
8/2/2022	0.028	0.035	No	No	
8/3/2022	0.026	0.034	No	No	
8/4/2022	0.025	0.034	No	No	
8/5/2022	0.027	0.034	No	No	
8/6/2022	0.026	0.034	No	No	
8/7/2022	0.025	0.033	No	No	
8/8/2022	0.025	0.033	No	No	
8/9/2022	0.028	0.032	No	No	
8/10/2022	0.029	0.032	No	No	
8/11/2022	0.030	0.031	No	No	
8/12/2022	0.024	0.031	No	No	
8/13/2022	0.021	0.030	No	No	
8/14/2022	0.000	0.029	No	No	
8/15/2022	0.000	0.028	No	No	
8/16/2022	0.000	0.027	No	No	
8/17/2022	0.000	0.026	No	No	
8/18/2022	0.000	0.025	No	No	
8/19/2022	0.000	0.024	No	No	
8/20/2022	0.000	0.022	No	No	
8/21/2022	0.000	0.021	No	No	
8/22/2022	0.000	0.020	No	No	
8/23/2022	0.000	0.019	No	No	
8/24/2022	0.000	0.018	No	No	
8/25/2022	0.000	0.017	No	No	

Date	Hourly daily average NOx (lb/MMBtu)	30-day rolling average NOx (lb/MMBtu)	Excess Emissions (yes/no)	NOx Conc Exceeded CEM Span? (yes/no)	Comments: Reason for Missing or Invalid Data, or Excess Emissions
8/26/2022	0.000	0.016	No	No	
8/27/2022	0.000	0.015	No	No	
8/28/2022	0.000	0.014	No	No	
8/29/2022	0.000	0.013	No	No	
8/30/2022	0.000	0.012	No	No	
8/31/2022	0.000	0.011	No	No	
9/1/2022	0.000	0.010	No	No	
9/2/2022	0.000	0.009	No	No	
9/3/2022	0.000	0.008	No	No	
9/4/2022	0.000	0.008	No	No	
9/5/2022	0.000	0.007	No	No	
9/6/2022	0.000	0.006	No	No	
9/7/2022	0.000	0.005	No	No	
9/8/2022	0.000	0.004	No	No	
9/9/2022	0.000	0.003	No	No	
9/10/2022	0.000	0.002	No	No	
9/11/2022	0.000	0.001	No	No	
9/12/2022	0.000	0.001	No	No	
9/13/2022	0.000	0.000	No	No	
9/14/2022	0.000	0.000	No	No	
9/15/2022	0.000	0.000	No	No	
9/16/2022	0.000	0.000	No	No	
9/17/2022	0.000	0.000	No	No	
9/18/2022	0.000	0.000	No	No	
9/19/2022	0.000	0.000	No	No	
9/20/2022	0.000	0.000	No	No	
9/21/2022	0.000	0.000	No	No	
9/22/2022	0.000	0.000	No	No	
9/23/2022	0.000	0.000	No	No	
9/24/2022	0.000	0.000	No	No	
9/25/2022	0.000	0.000	No	No	
9/26/2022	0.000	0.000	No	No	
9/27/2022	0.000	0.000	No	No	
9/28/2022	0.000	0.000	No	No	
9/29/2022	0.000	0.000	No	No	
9/30/2022	0.000	0.000	No	No	

Attachment B – Data Assessment Report

Data Assessment Report - East Side Fuel Gas Mix Drum H_2S CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B008, B009, B010

CEMS Manufacturer: Siemens	*Model #:* Maxim II	*CEMS Serial #:* 30028039490020
CEMS type: Hydrogen Sulfide	*CEMS sampling location:* East Side Fuel Gas Mix Drum	

CEMS span values as per the applicable regulation:

	PPM		Percent
SO_2		**O_2**	
H_2S	300	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for H_2S (ppm):

	H2S (ppm)	
	Audit #1	Audit #2
1. Date of audit	9/15/2022	9/15/2022
2. Cylinder ID number	CC475533	CC351046
Vendor	AirGas	AirGas
3. Date of certification	10/5/2021	12/8/2020
Expiration date	10/5/2024	12/8/2023
4. Type of certification	EPA Protocol	EPA Protocol
5. Certified audit value	74.29	158.90
6. CEMS response values	74.87	160.11
	76.06	157.55
	77.43	156.91
Average	76.12	158.19
7. Accuracy	2.46%	-0.45%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - TIU Fuel Gas Mix Drum H_2S CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B015, B017, B019, B022, B029, B030, B031, B032, B033, B034, B035, P007

CEMS Manufacturer: Siemens	*Model #:* Maxim II	*CEMS Serial #:* 30020117999300
CEMS type: Hydrogen Sulfide	*CEMS sampling location:* TIU Fuel Gas Mix Drum	

CEMS span values as per the applicable regulation:

	PPM		Percent
SO_2		O_2	
H_2S	300	CO_2	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for H_2S (ppm):

	H2S (ppm)	
	Audit #1	Audit #2
1. Date of audit	8/16/2022	8/16/2022
2. Cylinder ID number	CC475533	CC482384
Vendor	AirGas	AirGas
3. Date of certification	10/5/2021	11/11/2019
Expiration date	10/5/2024	11/11/2022
4. Type of certification	EPA Protocol	EPA Protocol
5. Certified audit value	74.29	163.50
6. CEMS response values	75.23	164.23
	71.76	159.10
	74.14	162.40
Average	73.71	161.91
7. Accuracy	-0.78%	-0.97%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - Reformer 3 Heater H_2S CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B036

CEMS Manufacturer: Siemens	*Model #:* Maxim II	*CEMS Serial #:* 30029994471080
CEMS type: Hydrogen Sulfide	*CEMS sampling location:* Reformer 3 Heater Fuel Gas	

CEMS span values as per the applicable regulation:

	PPM		Percent
SO_2		O_2	
H_2S	300	CO_2	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for H_2S (ppm):

	H2S (ppm)	
	Audit #1	Audit #2
1. Date of audit	9/15/2022	9/15/2022
2. Cylinder ID number	CC475533	CC351046
Vendor	AirGas	AirGas
3. Date of certification	10/5/2021	12/8/2020
Expiration date	10/5/2024	12/8/2023
4. Type of certification	EPA Protocol	EPA Protocol
5. Certified audit value	74.29	158.90
6. CEMS response values	67.29	155.16
	74.72	151.34
	75.26	153.24
Average	72.42	153.25
7. Accuracy	-2.52%	-3.56%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - East Flare H_2S CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P003

CEMS Manufacturer: Siemens	*Model #:* Maxim II	*CEMS Serial #:* 30050531960100
CEMS type: Hydrogen Sulfide	*CEMS sampling location:* East Flare	

CEMS span values as per the applicable regulation:

	PPM		**Percent**
SO_2		**O_2**	
H_2S	300	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for H_2S (ppm):

	H2S (ppm)	
	Audit #1	Audit #2
1. Date of audit	9/9/2022	9/9/2022
2. Cylinder ID number	CC475533	CC482384
Vendor	AirGas	AirGas
3. Date of certification	10/5/2022	11/11/2019
Expiration date	10/5/2024	11/11/2022
4. Type of certification	EPA Protocol	EPA Protocol
5. Certified audit value	74.29	163.50
6. CEMS response values	72.46	155.66
	72.76	155.90
	73.09	155.09
Average	72.77	155.55
7. Accuracy	-2.05%	-4.86%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - West Flare H_2S CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P004

CEMS Manufacturer: Siemens	*Model #:* Maxim II	*CEMS Serial #:* 30050531960400
CEMS type: Hydrogen Sulfide	*CEMS sampling location:* West Flare	

CEMS span values as per the applicable regulation:

	PPM		**Percent**
SO_2		**O_2**	
H_2S	300	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for H_2S (ppm):

	H2S (ppm)	
	Audit #1	Audit #2
1. Date of audit	9/9/2022	9/9/2022
2. Cylinder ID number	CC475533	CC482384
Vendor	AirGas	AirGas
3. Date of certification	10/5/2021	11/11/2019
Expiration date	10/5/2024	11/11/2022
4. Type of certification	EPA Protocol	EPA Protocol
5. Certified audit value	74.29	163.50
6. CEMS response values	76.27	157.76
	75.52	154.31
	72.01	157.10
Average	74.60	156.39
7. Accuracy	0.42%	-4.35%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - East Flare TS CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P003

CEMS Manufacturer: ThermoFisher	*Model #:* Sola II	*CEMS Serial #:* SL-10430115
CEMS type: Total Sulfur	*CEMS sampling location:* East Flare	

CEMS span values as per the applicable regulation:

	PPM		
TS (low)	3,500		
TS (high)	350,000		

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable)

B. Cylinder gas audit (CGA) for TS Low (ppm) and TS High (ppm):

	TS Low		**TS High**	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/7/2022	9/7/2022	9/7/2022	9/7/2022
2. Cylinder ID number	ALM044117	CC476040	CC121778	CC34005
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	11/12/2019	4/27/2021	3/18/2019	7/8/2021
Expiration date	11/12/2022	4/27/2024	3/18/2027	7/8/2024
4. Type of certification	RATA Class	RATA Class	RATA Class	EPA Protocol
5. Certified audit value	888.0	1,937	87,110	192,500
6. CEMS response values	869.8	2,009.7	88,580.7	191,369.6
	875.4	1,910.7	88,359.6	191,142.9
	894.4	1,925.5	88,377.9	191,351.3
Average	879.9	1,948.6	88,439.4	191,287.9
7. Accuracy	-0.91%	0.60%	1.53%	-0.63%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - West Flare TS CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P004

CEMS Manufacturer: ThermoFisher	*Model #:* Sola II	*CEMS Serial #:* SL-10440115
CEMS type: Total Sulfur	*CEMS sampling location:* West Flare	

CEMS span values as per the applicable regulation:

	PPM		
TS (low)	3,500		
TS (high)	350,000		

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable)

B. Cylinder gas audit (CGA) for TS Low (ppm) and TS High (ppm):

	TS Low		TS High	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/6/2022	9/6/2022	9/6/2022	9/6/2022
2. Cylinder ID number	ALMX067939	CC202920	CC62361	CC354449
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	11/12/2019	4/27/2021	3/18/2019	7/8/2021
Expiration date	11/12/2022	4/27/2024	3/18/2027	7/8/2024
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	886.8	1,921.0	86,970	192,500
6. CEMS response values	847.2	1,868.8	88,048.4	193,779.5
	842.1	1,869.7	88,042.2	193,029.2
	843.0	1,870.6	87,906.7	192,920.2
Average	844.1	1,869.7	87,999.1	193,243.0
7. Accuracy	-4.82%	-2.67%	1.18%	0.39%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – TIU Fuel Gas Mix Drum TS CMS

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B015, B017, B019, B022, B029, B030, B031, B032, B033, B034, B035, P007

CEMS Manufacturer: ThermoFisher	*Model #:* Sola II	*CEMS Serial #:* SL-09030713
CEMS type: Total Sulfur	*CEMS sampling location:* TIU Fuel Gas Mix Drum	
CEMS span values as per the applicable regulation:		

	PPM		
TS	3,500		

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for:

	TS (ppm)	
	Audit #1	Audit #2
1. Date of audit	8/15/2022	8/15/2022
2. Cylinder ID number	CC67442	CC218822
Vendor	Airgas	Airgas
3. Date of certification	11/12/2019	3/21/2020
Expiration date	11/12/2022	3/21/2023
4. Type of certification	RATA Class	RATA Class
5. Certified audit value	887.40	1844.00
6. CEMS response values	807.00	1886.00
	825.00	1884.00
	819.00	1874.00
Average	817.00	1881.33
7. Accuracy	-7.93%	2.02%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods.
   a. Dates: None
   b. Number of days: NA
2. Corrective action taken: NA
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report - Reformer 3 Heater NO_x/O_2 CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B036

O_2 CEMS Manufacturer: ABB	Model #: MAGNOS 106	CEMS Serial # 3.340932.7
NO_x CEMS Manufacturer: ABB	Model #: LIMAS 11	CEMS Serial # 3.340287.1
CEMS sampling location: Reformer 3 Heater stack		
CEMS span values as per the applicable regulation:		

	PPM		Percent
SO_2		**O_2**	25
NO_x	200	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA) for: (Not Applicable)

B. Cylinder gas audit (CGA) for O2 (%) and NOx (ppm):

	O2 (%)		NOx (ppm)	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/15/2022	9/15/2022	9/15/2022	9/15/2022
2. Cylinder ID number	CC278207	BLM000740	BLM004296	LL10026
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	11/20/2017	10/4/2021	6/25/2020	11/12/2019
Expiration date	11/20/2025	10/4/2029	6/25/2028	11/12/2027
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	5.97	14.09	54.81	117.20
6. CEMS response values	6.10	14.21	52.82	114.80
	6.10	14.21	53.27	115.39
	6.10	14.22	53.50	115.64
Average	6.10	14.21	53.20	115.28
7. Accuracy	2.18%	0.85%	-2.94%	-1.64%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods: None
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – East Alstom Boiler NO_x/O_2 CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B034

O_2 CEMS Manufacturer: ABB	Model #: MAGNOS 106	CEMS Serial # 00400003357006
NO_x CEMS Manufacturer: ABB	Model #: LIMAS 11	CEMS Serial # 00400003362206
CEMS sampling location: East Alstom Boiler stack		
CEMS span values as per the applicable regulation:		

	PPM		Percent
SO_2		**O_2**	20.0
NO_x	100	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audits (RATAs): (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%):

	O_2		
	Audit #1	Audit #2	Audit #3
1. Date of audit	7/25/2022	7/25/2022	7/25/2022
2. Cylinder ID number	BLM005117	BLM004010	CC352246
Vendor	Airgas	Airgas	Airgas
3. Date of certification	5/22/2020	10/29/2020	10/18/2021
Expiration date	5/22/2028	10/29/2028	10/18/2029
4. Type of certification	RATA Class	RATA Class	RATA Class
5. Certified audit value	5.51	10.94	18.11
6. CEMS response values	5.51	10.94	18.15
	5.52	10.95	18.15
	5.52	10.95	18.15
Average:	5.52	10.95	18.15
7. Accuracy	0.11%	0.09%	0.22%

Cylinder gas audit (CGA) for NO_x (ppm):

	NO_x		
	Audit #1	Audit #2	Audit #3
1. Date of audit	7/25/2022	7/25/2022	7/25/2022
2. Cylinder ID number	LL84223	SG917946CAL	SG9151033BAL
Vendor	Airgas	Airgas	Airgas
3. Date of certification	12/14/2021	6/25/2020	4/30/2021
Expiration date	12/14/2024	6/25/2028	4/30/2029
4. Type of certification	RATA Class	RATA Class	RATA Class
5. Certified audit value	25.00	54.91	90.46
6. CEMS response values	25.35	54.69	90.06
	25.46	54.96	89.76
	25.48	54.85	89.62
Average:	25.43	54.83	89.81
7. Accuracy	1.72%	-0.15%	-0.72%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods. None
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – West Alstom Boiler NO_x/O_2 CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: B035

O_2 CEMS Manufacturer: ABB	Model #: MAGNOS 106	CEMS Serial # 00400003354606
NO_x CEMS Manufacturer: ABB	Model #: LIMAS 11	CEMS Serial # 00400003361106
CEMS sampling location: West Alstom Boiler stack		
CEMS span values as per the applicable regulation:		

	PPM		**Percent**
SO_2		**O_2**	20.0
NO_x	100	**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audits (RATAs): (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%):

	O_2		
	Audit #1	Audit #2	Audit #3
1. Date of audit	7/25/2022	7/25/2022	7/25/2022
2. Cylinder ID number	BLM005117	BLM004010	CC352246
Vendor	Airgas	Airgas	Airgas
3. Date of certification	5/22/2020	10/29/2020	2/24/2020
Expiration date	5/22/2028	10/29/2028	2/24/2028
4. Type of certification	RATA Class	RATA Class	RATA Class
5. Certified audit value	5.514	10.94	18.11
6. CEMS response values	5.58	11.01	18.19
	5.59	11.02	18.20
	5.59	11.02	18.20
Average:	5.59	11.02	18.20
7. Accuracy	1.38%	0.73%	0.50%

B. Cylinder gas audit (CGA) for NO_x (ppm):

	NO_x		
	Audit #1	Audit #2	Audit #3
1. Date of audit	7/25/2022	7/25/2022	7/25/2022
2. Cylinder ID number	LL84223	SG917946CAL	SG9151033BAL
Vendor	Airgas	Airgas	Airgas
3. Date of certification	12/14/2021	6/25/2020	4/30/2021
Expiration date	12/14/2024	6/25/2028	4/30/2029
4. Type of certification	RATA Class	RATA Class	RATA Class
5. Certified audit value	25	54.91	90.46
6. CEMS response values	24.57	54.25	88.57
	26.00	54.16	88.72
	24.47	54.94	89.08
Average:	25.01	54.45	88.79
7. Accuracy	0.04%	-0.84%	-1.85%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods. None
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – FCC/CO Boiler $SO_2/NO_x/CO/O_2$ CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P007

O_2 CEMS Manufacturer: ABB	Model #: Magnos 106	CEMS Serial # 3.340569.7
SO_2 CEMS Manufacturer: ABB	Model #: Limas 11 UV	CEMS Serial # 3.340641.7
NO_x CEMS Manufacturer: ABB	Model #: Limas 11 UV	CEMS Serial # 3.340641.7
CO CEMS Manufacturer: ABB Automation	Model #: URAS- 26	CEMS Serial # 3.347698.3
CEMS sampling location: CO Boiler stack		
CEMS span values as per the applicable regulation:		

SO_2	400 PPM	**O_2**	10.0 %
NO_x	350 PPM	**CO**	1000 PPM

I. <u>Accuracy assessment results</u> (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audits (RATAs): (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%) and SO_2 (ppm):

	O_2 (percent)		**SO_2 (ppm)**	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	8/24/2022	8/24/2022	8/24/2022	8/24/2022
2. Cylinder ID number	ALM001730	CC423357	ALM001730	CC423357
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	2/14/2017	2/14/2017	2/14/2017	2/14/2017
Expiration date	2/14/2025	2/14/2025	2/14/2025	2/14/2025
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	2.49	5.53	98.98	219.40
6. CEMS response values	2.50	5.49	96.75	214.59
	2.52	5.50	98.72	217.13
	2.52	5.50	99.57	217.87
Average	2.51	5.50	98.35	216.53
7. Accuracy	0.80%	-0.54%	-0.64%	-1.31%

B. Cylinder gas audit (CGA) for NO_x (ppm) and CO (ppm):

	NO_x (ppm)		CO (ppm)	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	8/24/2022	8/24/2022	8/24/2022	8/24/2022
2. Cylinder ID number	XC030834B	CC222300	XC030834B	CC222300
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	2/14/2017	2/14/2017	2/14/2017	2/14/2017
Expiration date	2/14/2025	2/14/2025	2/14/2025	2/14/2025
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	80.86	187.80	249.50	551.00
6. CEMS response values	74.96	180.23	250.86	552.85
	74.81	176.46	251.81	552.88
	74.65	175.61	251.88	553.26
Average	74.81	177.43	251.52	553.00
7. Accuracy	-7.48%	-5.52%	0.81%	0.36%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods. None
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – FCC Regen Line $SO_2/NO_x/CO/O_2/CO_2$ CEM

Period ending date: September 30 **Year:** 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P007

SO_2 CEMS Manufacturer: ABB	Model #: Limas 11 UV	CEMS Serial # 3.240685.3
NO_x CEMS Manufacturer: ABB	Model #: Limas 11 UV	CEMS Serial # 3.240682.3
CO CEMS Manufacturer: ABB	Model #: URAS 14	CEMS Serial # 3.240684.3
O_2 CEMS Manufacturer: ABB	Model #: Magnos 206	CEMS Serial # 01400101195301
CO_2 CEMS Manufacturer: ABB	Model #: Limas 11 UV	CEMS Serial # 3.240682.3
CEMS sampling location: FCC Regen Line stack		
CEMS span values as per the applicable regulation:		

SO_2	500 PPM	**O_2**	25.0 %
NOx	200 PPM	**CO**	1000 PPM
CO_2	50.0 %		

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audit (RATA): (Not applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%) and SO_2 (ppm):

	O_2 (percent)		**SO_2 (ppm)**	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/13/2022	9/13/2022	9/13/2022	9/13/2022
2. Cylinder ID number	XL001104B	BLM004046	CC443275	CC82139
Vendor	Airgas	Scott	Airgas	Airgas
3. Date of certification	11/20/2017	11/19/2015	11/21/2017	11/21/2017
Expiration date	11/20/2025	11/20/2023	11/21/2025	11/21/2025
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	5.49	13.90	130.70	267.60
6. CEMS response values	5.47	14.03	126.67	265.28
	5.47	14.03	125.61	267.29
	5.47	14.06	131.74	267.67
Average	5.47	14.04	128.01	266.75
7. Accuracy	-0.36%	1.01%	-2.06%	-0.32%

B. Cylinder gas audit (CGA) for NO_x (ppm) and CO (ppm):

	NO_x (ppm)		CO (ppm)	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/13/2022	9/13/2022	9/13/2022	9/13/2022
2. Cylinder ID number	LL34302	LL48450	LL26755	BLM004600
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	11/21/2017	11/12/2019	6/25/2020	10/27/2021
Expiration date	11/21/2025	11/12/2027	6/25/2028	10/27/2029
4. Type of certification	RATA Class	RATA Class	RATA Class	RATA Class
5. Certified audit value	54.90	117.30	272.70	547.50
6. CEMS response values	56.71	117.29	279.25	549.42
	56.34	116.65	279.44	549.78
	56.43	116.90	279.32	550.32
Average	56.49	116.95	279.34	549.84
7. Accuracy	2.90%	-0.30%	2.43%	0.43%

B. Cylinder gas audit (CGA) for CO_2 (ppm):

	CO_2 (ppm)	
	Audit #1	Audit #2
1. Date of audit	9/13/2022	9/13/2022
2. Cylinder ID number	ALM063125	CC472694
Vendor	Scott	Scott
3. Date of certification	9/24/2018	9/24/2018
Expiration date	9/24/2026	9/24/2026
4. Type of certification	RATA Class	RATA Class
5. Certified audit value	13.11	27.20
6. CEMS response values	13.47	27.10
	13.49	27.11
	13.49	27.10
Average	13.48	27.10
7. Accuracy	2.82%	-0.37%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.

1. Out-of-control periods. None
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – Sulfur Recovery Unit (SRU #1)
SO_2/O_2 CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P009

SO_2 CEMS Manufacturer: Ametek	Model #: 919	CEMS Serial #: ZB-919SP-10541-1
O_2 CEMS Manufacturer: Ametek	Model #: 919	CEMS Serial #: ZB-919SP-10541-1
CEMS sampling location: SRU Thermal Oxidizer		
CEMS span values as per the applicable regulation:		

	PPM		Percent
SO_2	500	**O_2**	10.0
NO_x		**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audits (RATAs): (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%) and SO_2 (ppm):

	O_2 percent		SO_2 ppm	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/14/2022	9/14/2022	9/14/2022	9/14/2022
2. Cylinder ID number	CC214749	CC13867	XC006260B	ALM004131
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	2/6/2017	11/20/2017	2/24/2017	2/14/2017
Expiration date	2/6/2025	11/20/2025	2/24/2025	2/14/2025
4. Type of certification	RATA Class	RATA Class	RATA Class	EPA Protocol
5. Certified audit value	2.54	5.98	124.00	268.70
6. CEMS response values	2.43	5.84	120.99	256.10
	2.43	5.84	126.56	269.47
	2.45	5.78	129.30	270.45
Average	2.44	5.82	125.62	265.34
7. Accuracy	-3.94%	-2.68%	1.31%	-1.25%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.
1. Out-of-control periods.
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Data Assessment Report – Sulfur Recovery Unit #2 and #3 (TRP SRU) SO_2/O_2 CEM

Period ending date: September 30 Year: 2022
Company name: BP-Husky Refining LLC **Plant name:** Toledo Refinery
Source unit #: P037

SO_2 CEMS Manufacturer: Ametek	Model #: 919	CEMS Serial #: ZX-919-10814-1
O_2 CEMS Manufacturer: Ametek	Model #: 919	CEMS Serial #: ZX-919-10814-1
CEMS sampling location: TGT #2 Thermal Oxidizer stack		
CEMS span values as per the applicable regulation:		

	PPM		Percent
SO_2	500	**O_2**	10.0
NO_x		**CO_2**	

I. Accuracy assessment results (Complete A, B, or C below for each CEMS or for each pollutant and diluent analyzer, as applicable.)

A. Relative accuracy test audits (RATAs): (Not Applicable this quarter)

B. Cylinder gas audit (CGA) for O_2 (%) and SO_2 (ppm):

	O_2 percent		SO_2 ppm	
	Audit #1	Audit #2	Audit #1	Audit #2
1. Date of audit	9/14/2022	9/14/2022	9/14/2022	9/14/2022
2. Cylinder ID number	CC214749	CC13867	XC006260B	ALM004131
Vendor	Airgas	Airgas	Airgas	Airgas
3. Date of certification	9/13/2016	11/20/2017	2/24/2017	2/14/2017
Expiration date	9/13/2024	11/20/2025	2/24/2025	2/14/2025
4. Type of certification	RATA Class	RATA Class	RATA Class	EPA Protocol
5. Certified audit value	2.54	5.98	124.00	268.70
6. CEMS response values	2.47	5.91	122.74	265.47
	2.42	5.91	125.65	266.97
	2.41	5.91	125.92	266.97
Average	2.43	5.91	124.77	266.47
7. Accuracy	-4.33%	-1.17%	0.62%	-0.83%

C. Relative accuracy audit (RAA) for: (Not Applicable this quarter)

D. Corrective action for excessive inaccuracy.
1. Out-of-control periods.
   a. Dates:
   b. Number of days:
2. Corrective action taken:
3. Results of audit following corrective action. (Use format of A, B, or C above.)

II. Calibration drift assessment - See Tables B1 & B2

Table B1 - Calibration Drift Assessment; Out-of-Control Periods for Part 60

CEMS	Start Time	End Time	Hours	Corrective Action Taken
SRU 1 SO2	8/1/2022 7:00	8/1/2022 9:00	2	Recalibrated and Returned Analyzer to service.
SRU 1 SO2	8/30/2022 7:00	8/30/2022 9:00	2	Recalibrated and Returned Analyzer to service.
TIUMD TS	8/16/2022 6:00	8/17/2022 10:00	28	Calibration gas was leaking causing failed calibration. Maintenance was performed. Analyzer returned to service.
East Flare TS	8/2/2022 7:00	8/2/2022 10:00	3	Replaced model 50 valve. Recalibrated and returned analyzer to service.
FCC Regen NOx	7/30/2022 7:00	7/31/2022 11:00	28	Adjusted flows. Recalibrated and Returned to service.
FCC Regen SO2	7/30/2022 7:00	7/31/2022 8:00	25	Adjusted flows. Recalibrated and Returned to service.
FCC Regen SO2	7/31/2022 8:00	8/1/2022 8:00	24	Adjusted flows. Recalibrated and Returned to service.
FCC Regen NOx	8/2/2022 9:00	8/3/2022 9:00	24	Cleared sample line and adjusted flows. Recalibrated and Returned to service.

Table B2 – Calibration Drift Assessment; Out-of-Control Periods for Part 63

CEMS	Start Time	End Time	Hours	Corrective Action Taken
SRU 1 SO2	8/1/2022 7:00	8/1/2022 9:00	2	Recalibrated and Returned Analyzer to service.
SRU 1 SO2	8/30/2022 7:00	8/30/2022 9:00	2	Recalibrated and Returned Analyzer to service.
TRP SRU SO2	8/31/2022 7:00	8/31/2022 9:00	2	Changed cylinder and cylinder pressure gauge. Recalibrated and returned to service.
FCC Regen CO2	7/30/2022 7:00	7/31/2022 9:00	26	Failed Part 63 daily calibration
FCC Regen O2	7/30/2022 7:00	7/31/2022 8:00	25	Failed Part 63 daily calibration

Per 40 CFR Part 63.8(c)(7)(i), a CMS is out of control if the zero, mid-level, or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard. These instances are reported in Table B2 above.